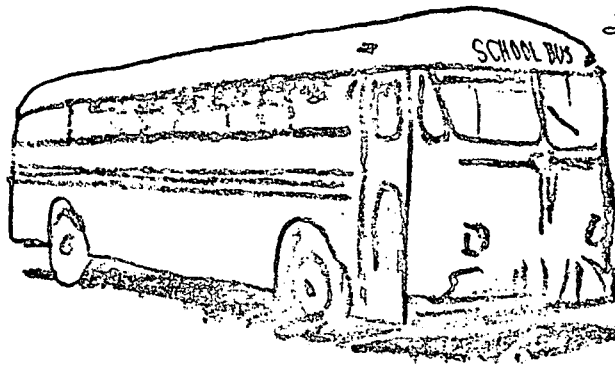


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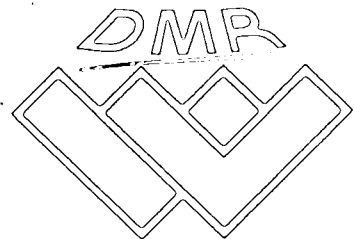
PUBLIC SCHOOL TRANSPORTATION IN MARYLAND

STUDY OF RELATIVE MERITS
OF PUBLIC AND PRIVATE OWNERSHIP AND OPERATION

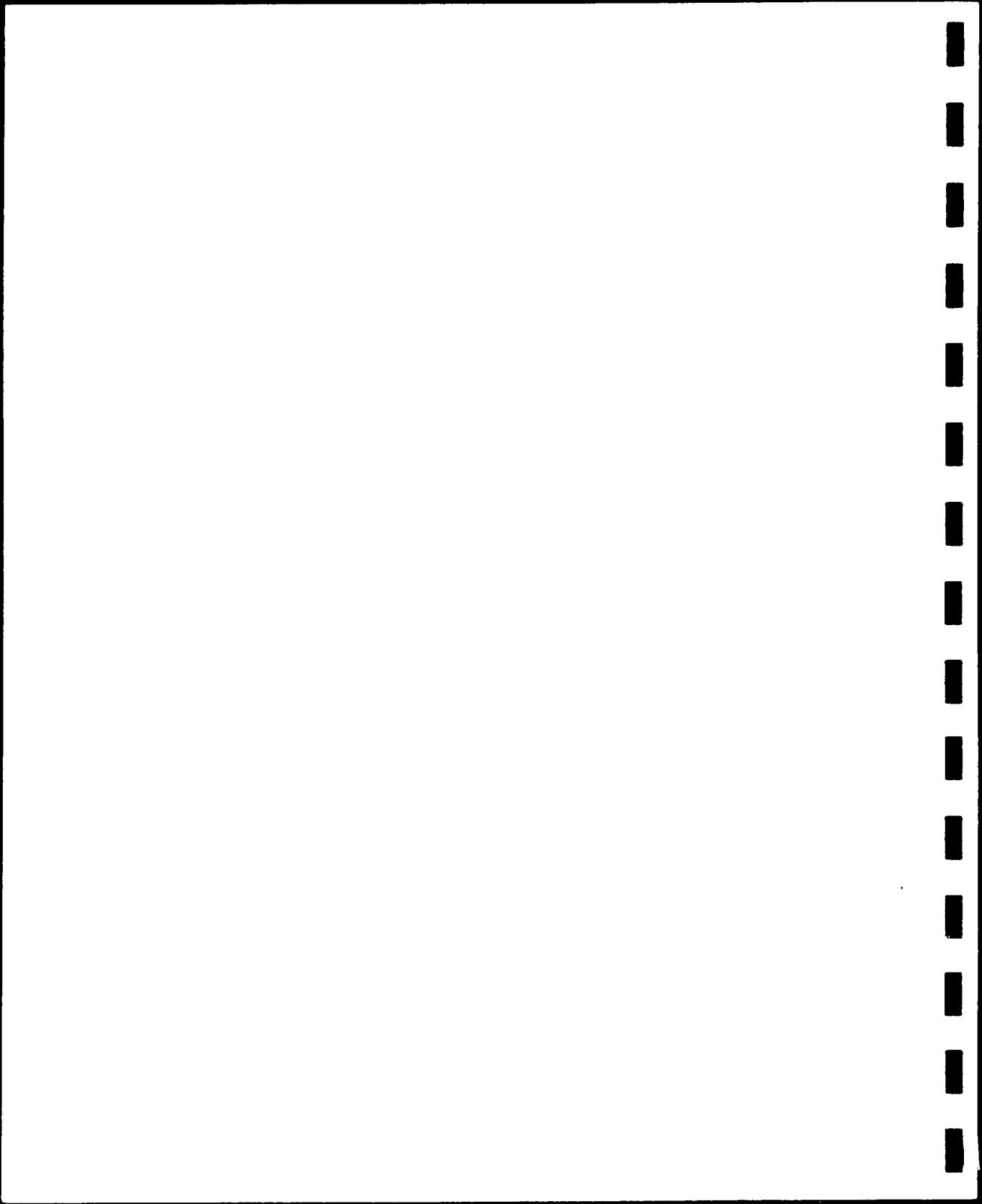
A PROPOSAL FROM

EO-BP-P-144

DMR DIVISION WESTINGHOUSE LEARNING CORPORATION ○ EDUCATIONAL CONSULTANTS



4600 Duke Street, Suite 309 ○ Alexandria, Virginia 22304 ○ (703) 751-9410



PUBLIC SCHOOL TRANSPORTATION
IN MARYLAND

A PROPOSAL FOR STUDY OF THE RELATIVE
MERITS OF PUBLIC AND PRIVATE OWNERSHIP
AND OPERATION OF PUBLIC SCHOOL TRANSPORTATION
SYSTEMS

SUBMITTED TO
GOVERNOR MARVIN MANDEL
STATE OF MARYLAND

DAVIS MACCONNELL RALSTON/WESTINGHOUSE LEARNING CORPORATION

WLC PROPRIETARY

1971

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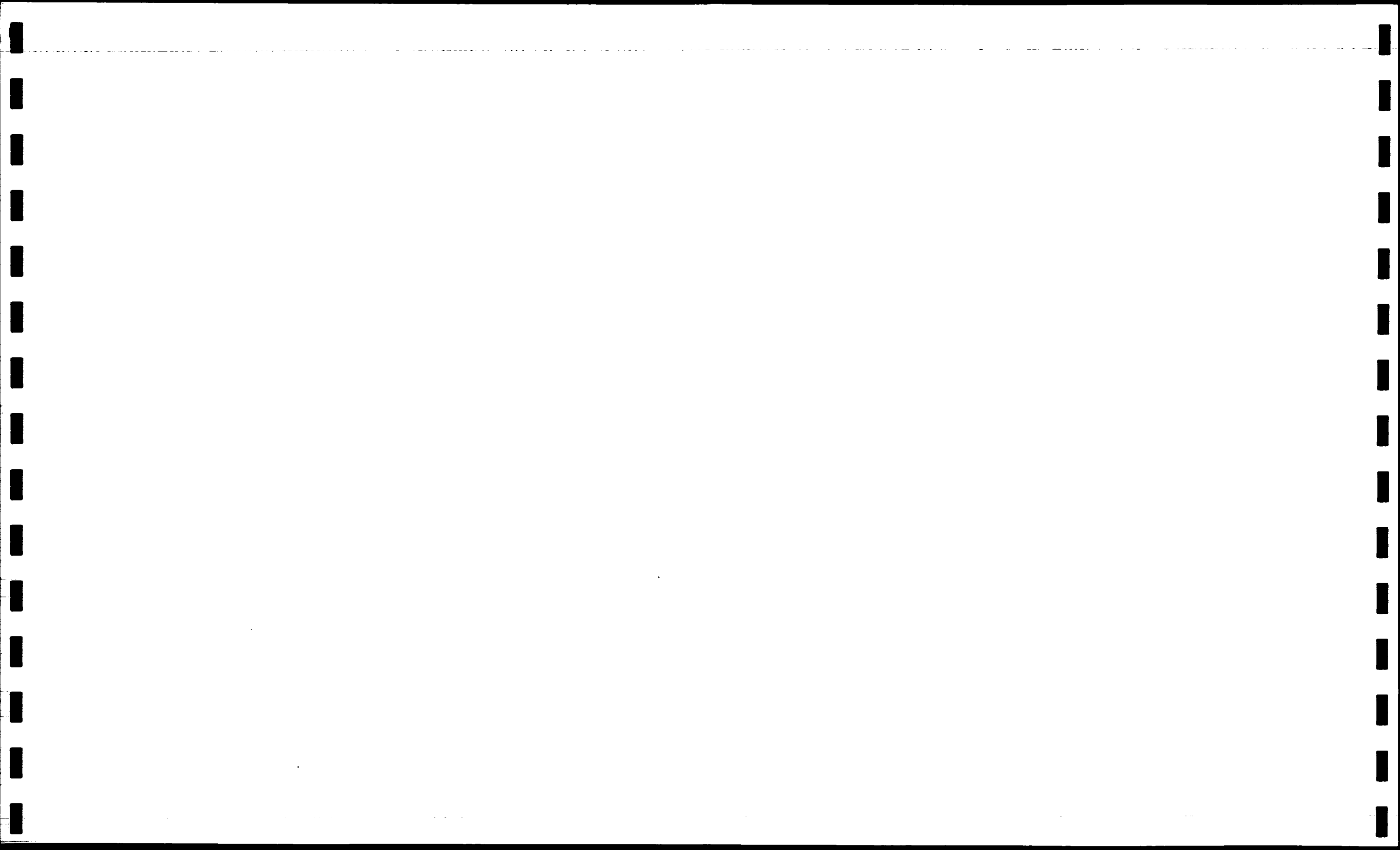
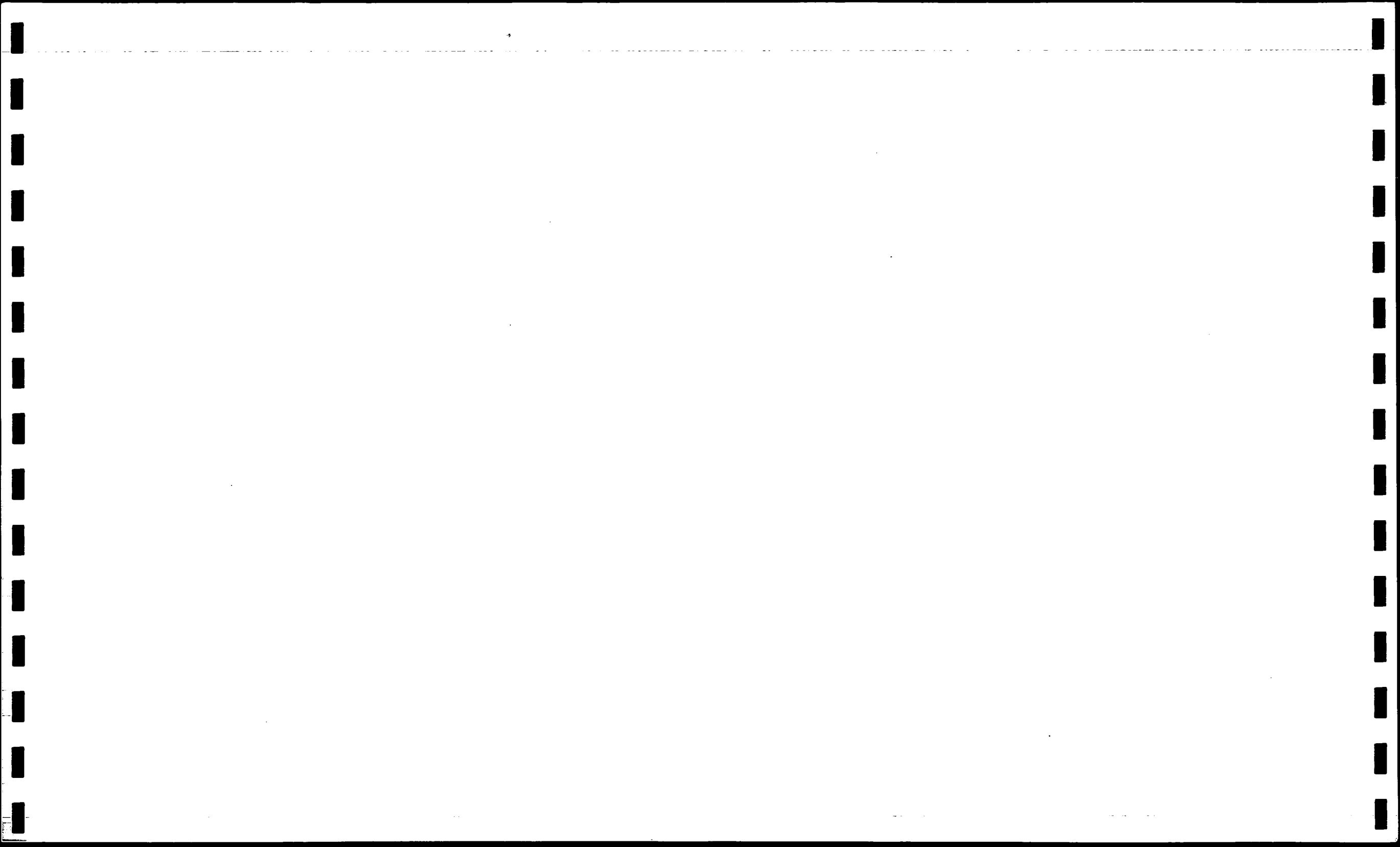
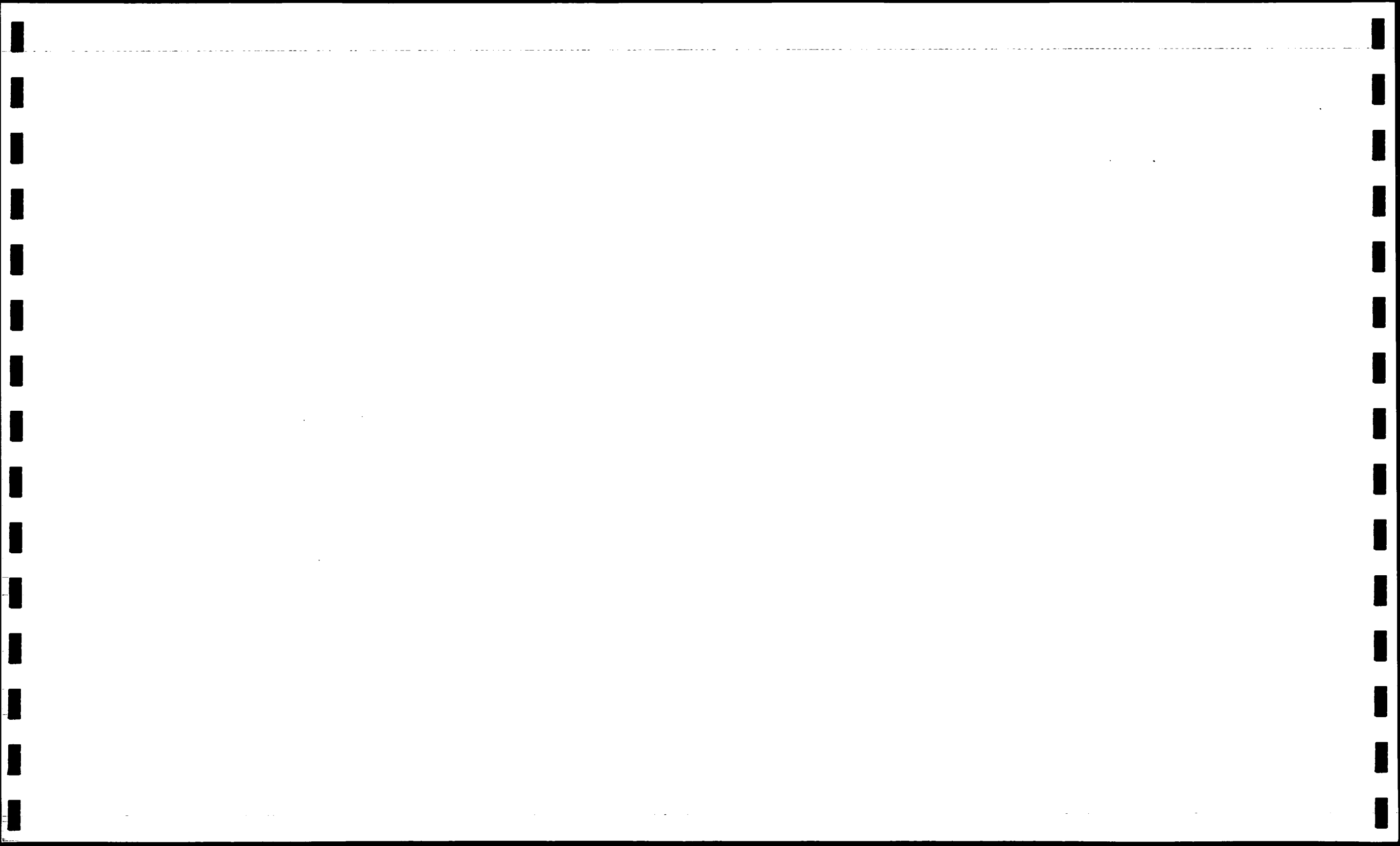


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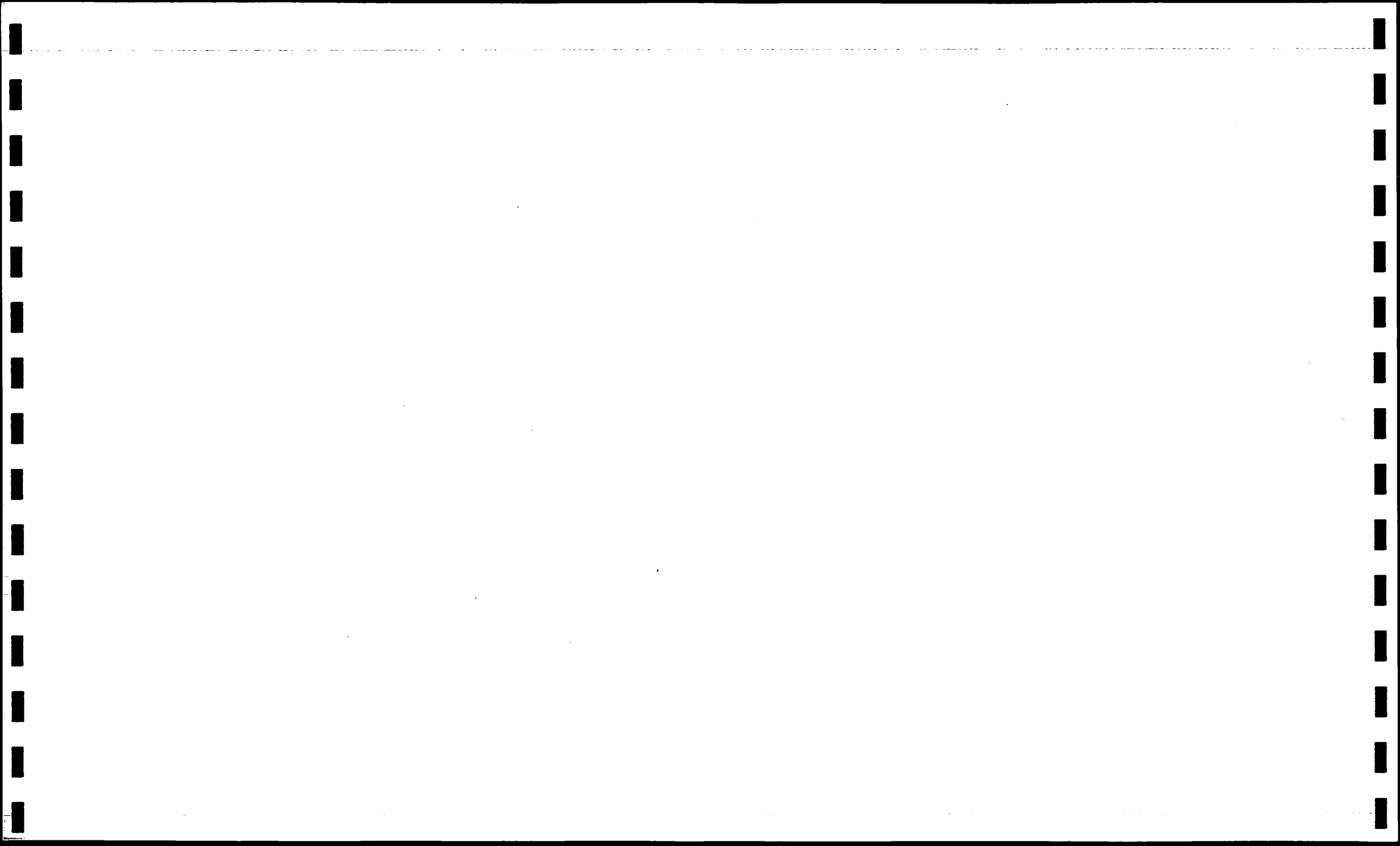
INTRODUCTION

Opposing points of view regarding public versus private ownership and operation of public school transportation systems have operated in the State of Maryland for several years. The rising level of expenditures for transportation, the variety of arrangements currently existing, the potential impact on the citizens of the State, and the attention of the legislature to the question, have contributed to the need conduct of an independent objective study of the question.

The growing reliance of school districts on transportation services in correlation with the escalation of costs of these services make this question one of vital importance to the State of Maryland as well as to many other jurisdictions which face similar questions. In addition, the impact on the children of the State and their educational opportunity cannot and must not be overlooked in the conduct of such a study.

This proposal is in response to the Governor's invitation for proposals of December 18, 1970. The specifications included therein have been reviewed in depth and are fully understood. They serve as the basic outline for this response.

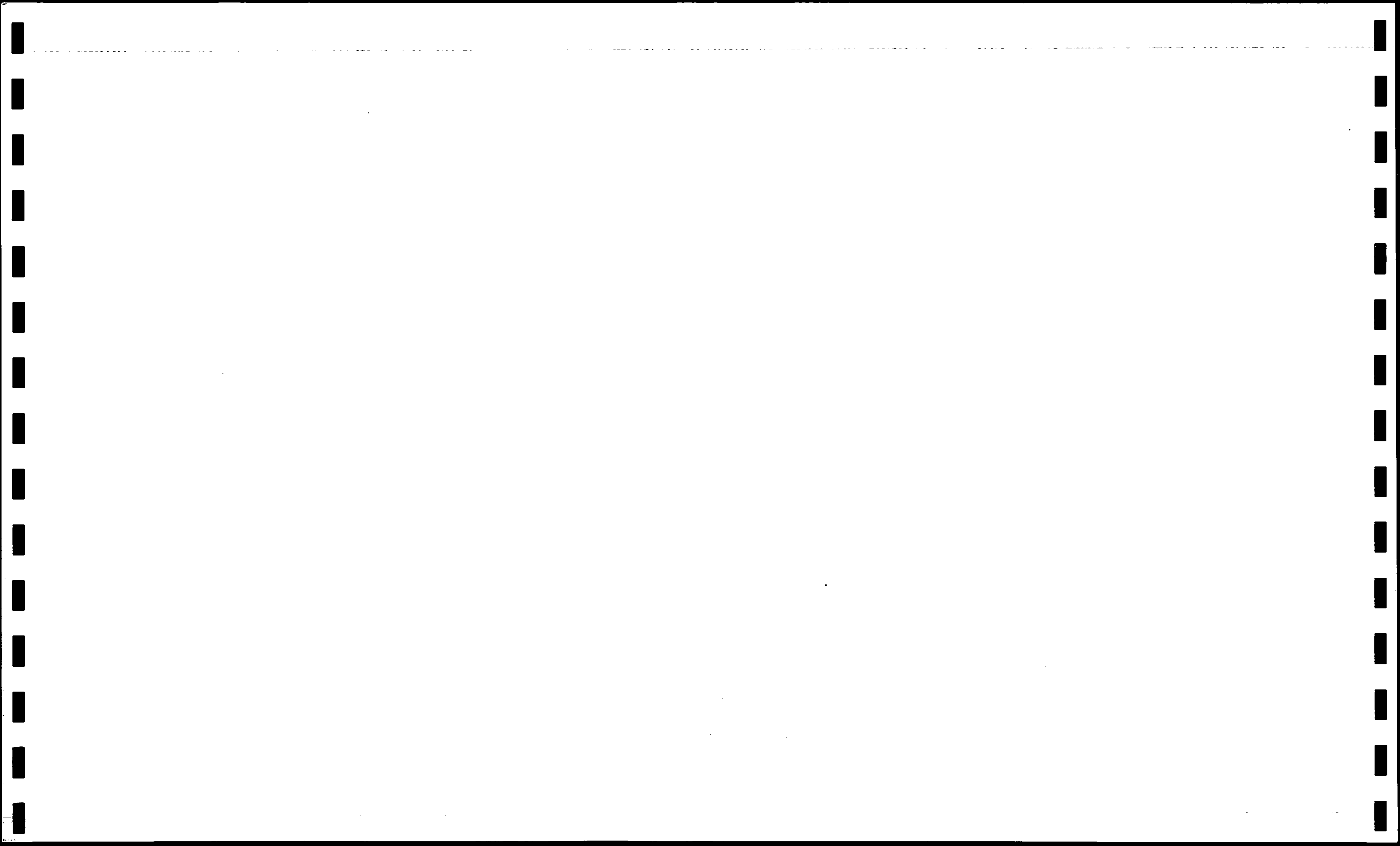
In developing this response, Davis MacConnell Ralston, a division of Westinghouse Learning Corporation, has teamed with MOBILITY SYSTEMS co., transportation consultants. We believe that this combination of capabilities and disciplines will provide a more comprehensive framework for analysis within which to develop study results.



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STUDY APPROACH AND SUMMARY OF TASKS

PRELIMINARY TASKS

Preliminary to conduct of the study, the Consultants propose a joint session with the Governor's Committee in order to develop a thorough understanding of the problems and to gain additional direction, information, etc.

At this time, selection of individual subdivisions for the indepth study could also be accomplished. This selection process is extremely important as implications for the entire State will evolve from results of the subdivisions analyzed. We propose to study five subdivisions in this effort. Those which should be candidates for study are representative subdivisions where the greatest amounts of state aid are now being spent.

APPROACH AND TASK SUMMARY

As required by the comprehensive bid specifications, we have included four distinct areas for analysis.

We also propose an optional study effort described below. Areas are:

- I Philosophical Assumptions
- II Direct and Indirect Costs
- III Unique Cost Variables
- IV Reimbursement Formula
- V Attitudinal Factors (Optional)

Prior to beginning indepth analyses in each study area, we propose to collect data by conducting interviews with appropriate local administrators, school board members, and private and public

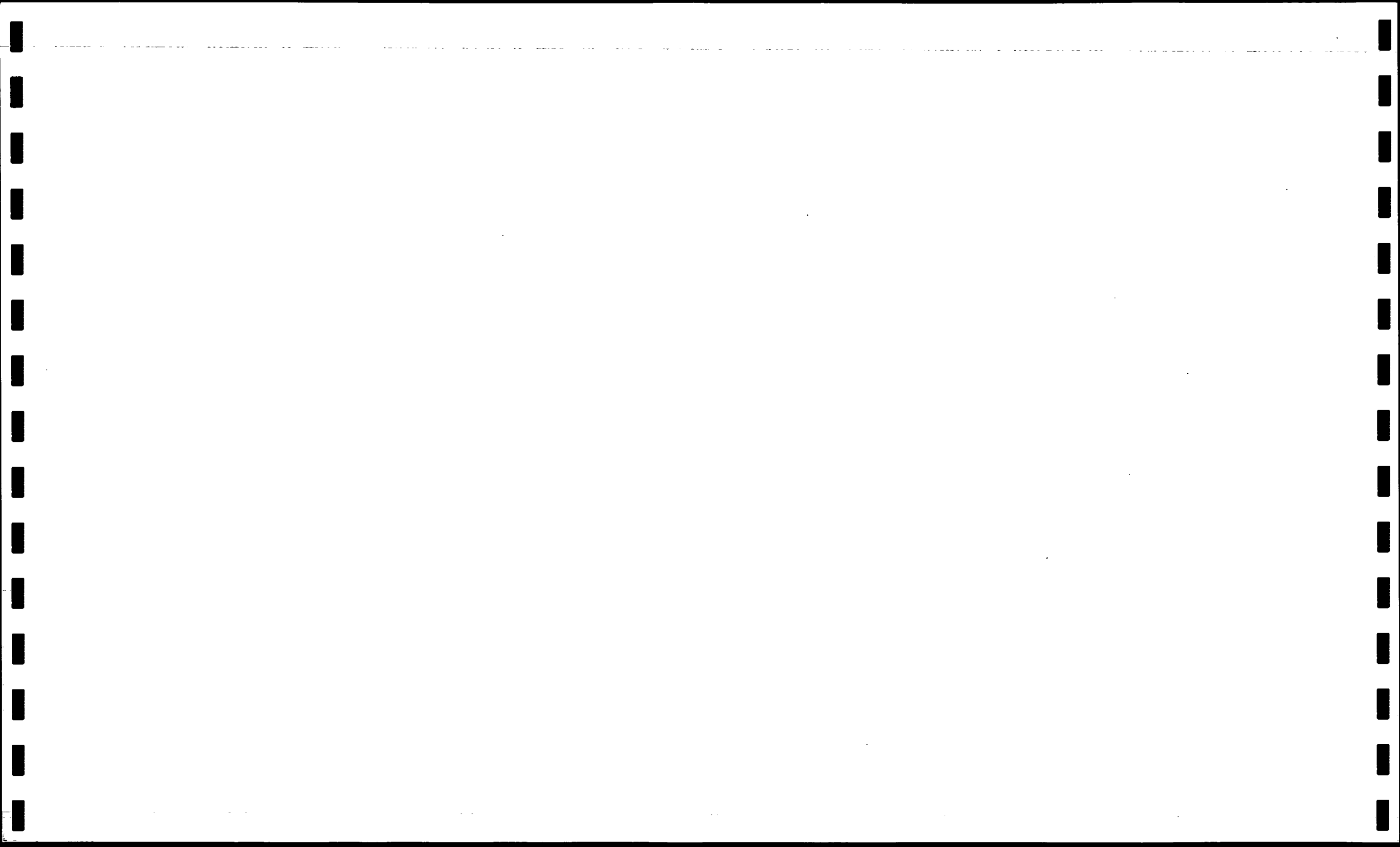
transportation management personnel, by examination of existing school bus fleets, and operating, maintenance and accounting records. We will also research existing State and local laws, taxing, and licensing regulations governing buses. Further, information concerning other states' reimbursement formulae will be obtained as required to make comparisons. All data will be tested for validity and relevance prior to any analysis. We will synthesize data into manageable terms so that analysis will be facilitated.

In order to assist in the analysis of each study task, we believe it is necessary to have a thorough understanding of the operation of each subdivision's bus system. In conjunction with gathering data we will establish the basis upon which each subdivision's system is operated and maintained. This will give insight as to philosophy of operation, performance and service levels, and explanation as to costs incurred and why they are incurred.

For developing direct and indirect costs we will use only valid historical data. We will reduce cost results to workable form for comparison, such as cost per pupil transported and cost per bus mile. This will be done for each subdivision examined and for each category of operation. Unique service costs will be separated out from routine service costs. Emphasis will be placed on determining the total costs of operating each system.

It is possible that after an indepth cost development and preliminary analysis that positive conclusions and recommendations as to the best type of ownership arrangement will still not be possible. This is a reasonable possibility because conditions across representative subdivisions may vary widely precluding any generalizations about the best statewide ownership arrangement or combination of arrangements.

We propose, where necessary, to develop hypothetical comparative data in order to reach solid conclusions and recommendations. For example, where a system is entirely under private ownership, we



will develop hypothetical costs for the same system as if it were under public ownership. In the case where a subdivision has both public and private ownership, we will develop hypothetical costs for the system as if it were under total public ownership. The third case, which is hypothetically converting a completely publicly owned system to private ownership, is feasible to do within the scope of this study. However, although cost estimates can be developed for conversion to a total private ownership basis, the only way to verify the results is by advertising and obtaining competitive bids from potential private operators. Obtaining bids is not proposed as a part of the scope of this effort. Should reasonable certainty for potential economic savings exist for recommending conversion to private ownership without bid verification we will make appropriate recommendations. If potential savings are marginal, the prudent course would dictate future bid taking in order to verify estimates.

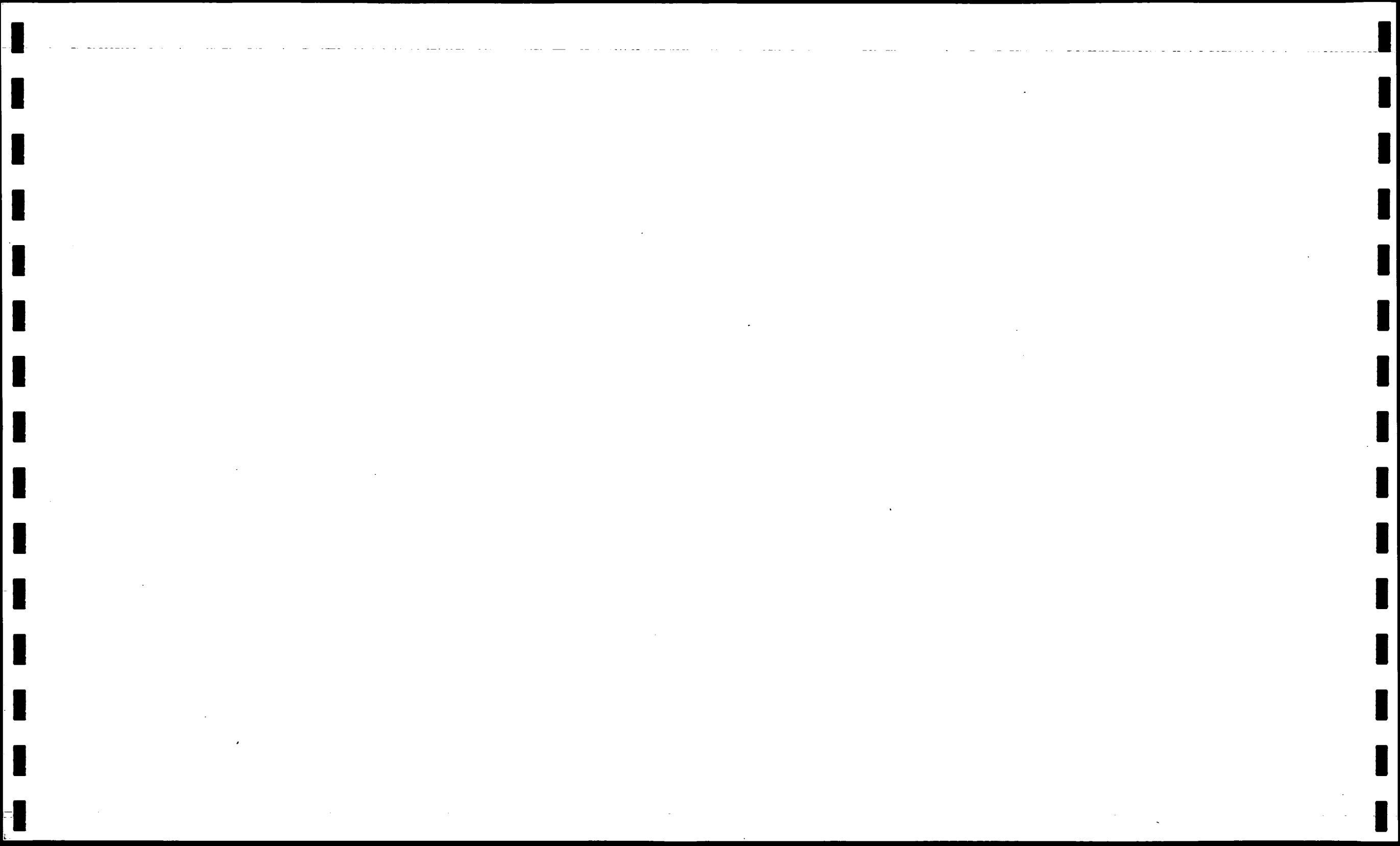
In order to accomplish analysis of hypothetical system operation and its total costs, a complete system will be hypothesized, structured, simulated on paper, and costed.

Short and long range cost projections will be made and discount cash-flow (present value) analysis will be used to compare investments and use of State aid. Where required, our Operating Costs computer program will be used to assist in developing calculations.

Implications of study conclusions and recommendations will be fully explained prior to inclusion into our study report. In order to be as well prepared as possible of the attitudes and reactions in those communities affected by study recommendations, we have proposed including development and analysis of these attitudinal factors. This effort is offered as an option to the basic study effort. It would be very helpful in effectively implementing study recommendations.

In the course of developing our analysis, we will be alert to identify improvements to existing system operations that can be implemented in the very near term.

Our study effort will be highly documented so that its validity will be established. Conclusions and recommendations will be included in a summary report for ease of reading. Documentation of the analyses will be included in accompanying backup reports. We will attend up to three future review conferences as required following submission of our reports.

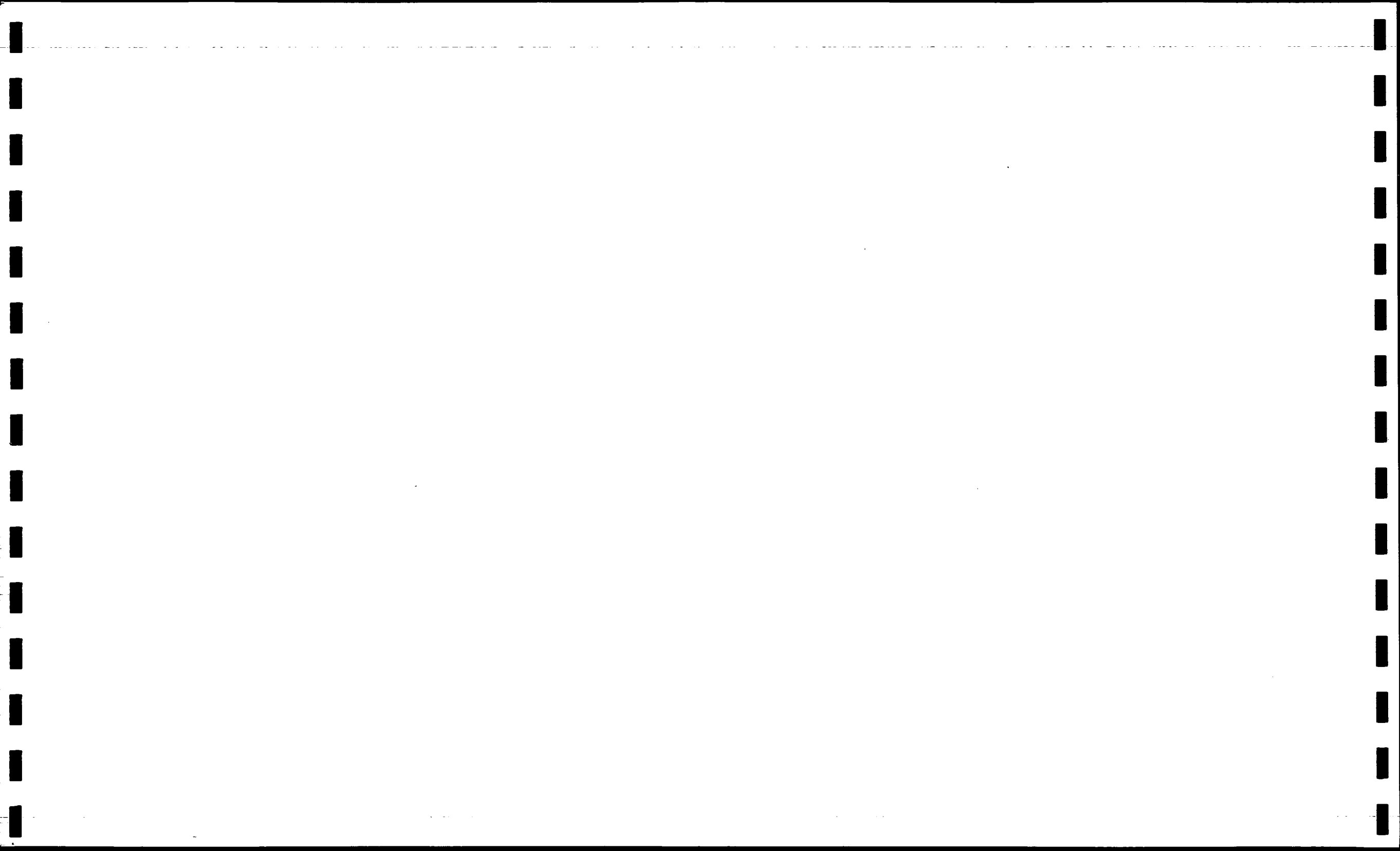


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CONCEPT OF THE TASK

The comprehensive bid specifications developed for the study of State transportation services indicate four distinct areas of analysis to be included in the study. The following sections of this proposal are developed in accordance within these guidelines. The order of the items has been rearranged and in one instance subdivided to meet the Consultants view of the conceptual needs of the study.

I. ANALYSIS OF PHILOSOPHICAL ASSUMPTIONS WHICH SERVE AS A BASIS FOR TRANSPORTATION IN EACH OF THE SUBDIVISIONS

In recent years bussing has become much more than a means of moving pupils from one point to another. In some instances, the use of the school bus has become a learning tool for long distance riders; in others, it has become the primary tool to implement integration; and in still others, it has been used to extend the curricular experiences available to pupils. These approaches to bus use have, in general, grown out of the need to gain additional value from major investments, to comply with legal requirements, and/or as the result of particular philosophies or policies.

Adjunctive to transportation policies and philosophies are the educational philosophies and resultant implications for bussing. Particular educational programs which require pupil movement such as part time pupils, special education, vocational-technical, and other similar programs which require bussing can be seen to have the potential for tremendous impact on any recommendation which may be made.

The atmosphere and environment established on the morning school bus may well set the tone for the behavioral attitudes of pupils and may affect the total learning environment of the school. The attitude of the bus driver, the type of training, the conditions of employment, the level of screening and selection, the general condition of the bus, and the philosophy of the management of the

bus line, whether public or private, are at least some of the variables which should be analyzed to learn the specific differences which may exist and the potential educational advantages and/or disadvantages of private or public operation.

In order to establish the level of significance of each of these input variables, the Consultants shall in conjunction with analysis of direct and indirect costs:

1. Collect Data:

Conduct interviews with a representative number of private and public transportation management personnel.

Conduct interviews with administrative personnel from at least six schools served by publicly operated buses.

Conduct interviews with administrative personnel from at least six schools served by privately owned/operated buses.

Collect and review written policies of each of the subdivisions.

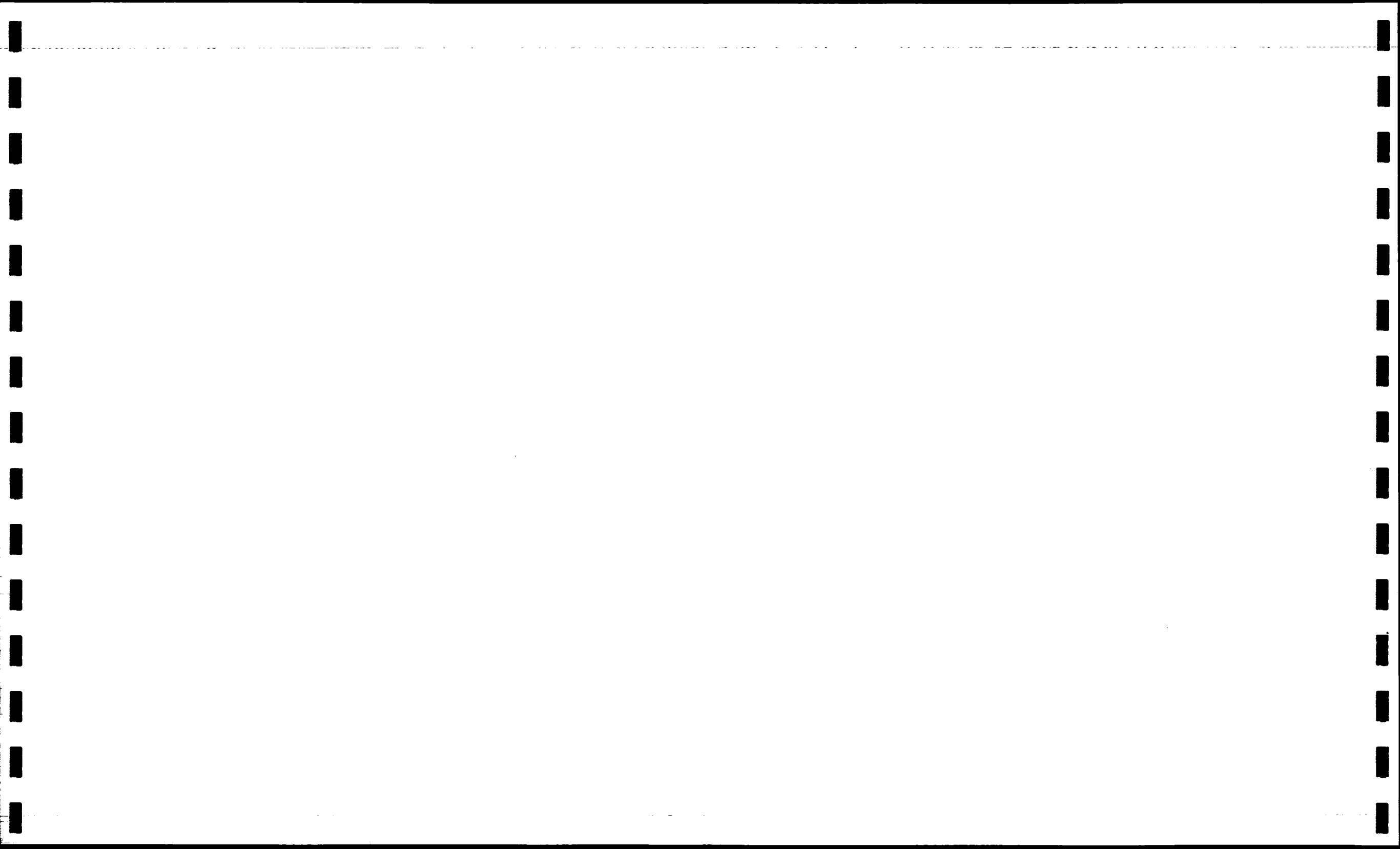
2. Analyze Data:

Compare the philosophies of each of the subdivisions as to similarities and differences.

Compare the policies of each of the subdivisions as to similarities and differences.

Identify areas of implication for private and public ownership of transportation contained in the data.

Compare the behavioral influences of bussed pupils to determine differences (if any) between private and public operation.



Compare the attitudes and philosophical differences between management personnel of public and privately operated transportation organizations.

Identify advantages and/or disadvantages of public and private ownership in order to meet the philosophical and policy requirements of the subdivisions.

The basic intent of this portion of the study is to determine if there are factors that cannot be measured in either cost or efficiency which should influence the ultimate recommendations. If indeed these variables exist, the level of their significance will need to be developed in the formula for transportation of pupils in the State of Maryland.

II. ANALYSIS OF DIRECT AND INDIRECT COSTS

The collection and evaluation of comparative data concerning costs of pupil transportation systems in Maryland is a key element of the study.

In order to establish the level of significance of cost inputs, the Consultants shall:

1. Collect Data:

Conduct interviews with a representative number of private and public transportation management personnel from each of the five subdivisions.

Conduct interviews with administrative personnel from selected schools served by publicly operated buses.

Conduct interviews with administrative personnel from selected schools served by privately owned/operated buses.

Examine the fleets of at least six organizations (3 public and 3 private) to ascertain condition factors.

As noted below, establish a data bank of information relating to cost and system operation for each subdivision studied.

2. Define System Performance/Operation:

Typical system performance and method of operation for each of the five subdivisions studied will be established considering the following factors:

Departure preparation - inspection, warmup, weather effects

Depart garage

Inbound Route (Home to School)

Average run time vs scheduled time

Average stop time

Frequency of pickups (stops) per run

Average number of passengers per pickup
(partial measure of service level)

Average distance between pickups

(measures density and partial measure of service level)

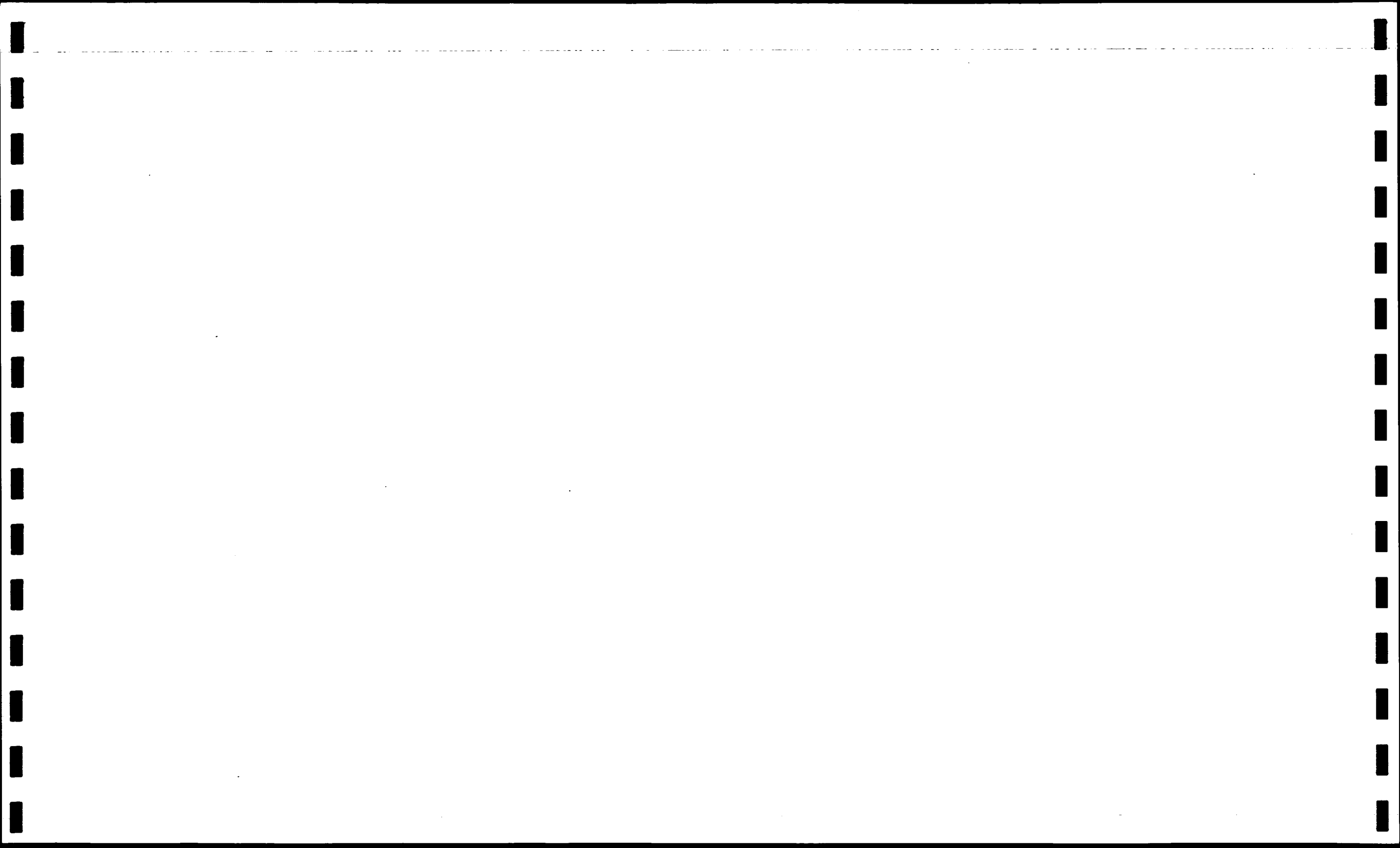
Average pupil trip time

(partial measure of service level)

Range of pupil trip times-shortest/longest

Arrival at School

Unload procedures, average time



Repeat runs (Home to School) where applicable

Return to Garage

Depart Garage/Arrive School

Outbound Route (School to Home)

Load procedures, average time

Test for reverse of inbound route performance

Test for effect of different traffic conditions

Repeat Runs (School to Home) where applicable

Return to Garage

Check in procedures

Beyond development of system performance we will:

Determine criteria management and administration use for system operation. How are management objectives translated into operating policy?

Determine maintenance policies.

Determine safety policies; that codes, inspections are met. Analyze accident frequency data where available.

Determine reliability levels. Is substitute service provided when equipment breaks down? Number of spares in fleet. Effect of weather on operations. Procedures during inclement weather.

Determine comfort levels. Passengers per seat; standees allowed. Effect if standees are allowed. Type seating used, sizes, other environmental effects such as heating, ventilating, lighting.

Develop Total Costs

Once the respective subdivision's system operation and performance base has been established, total system costs will be determined.

Cost items identified for analyses are grouped under the major headings of Capital Expenditures, Operational Expenditures, and Other Expenditures.

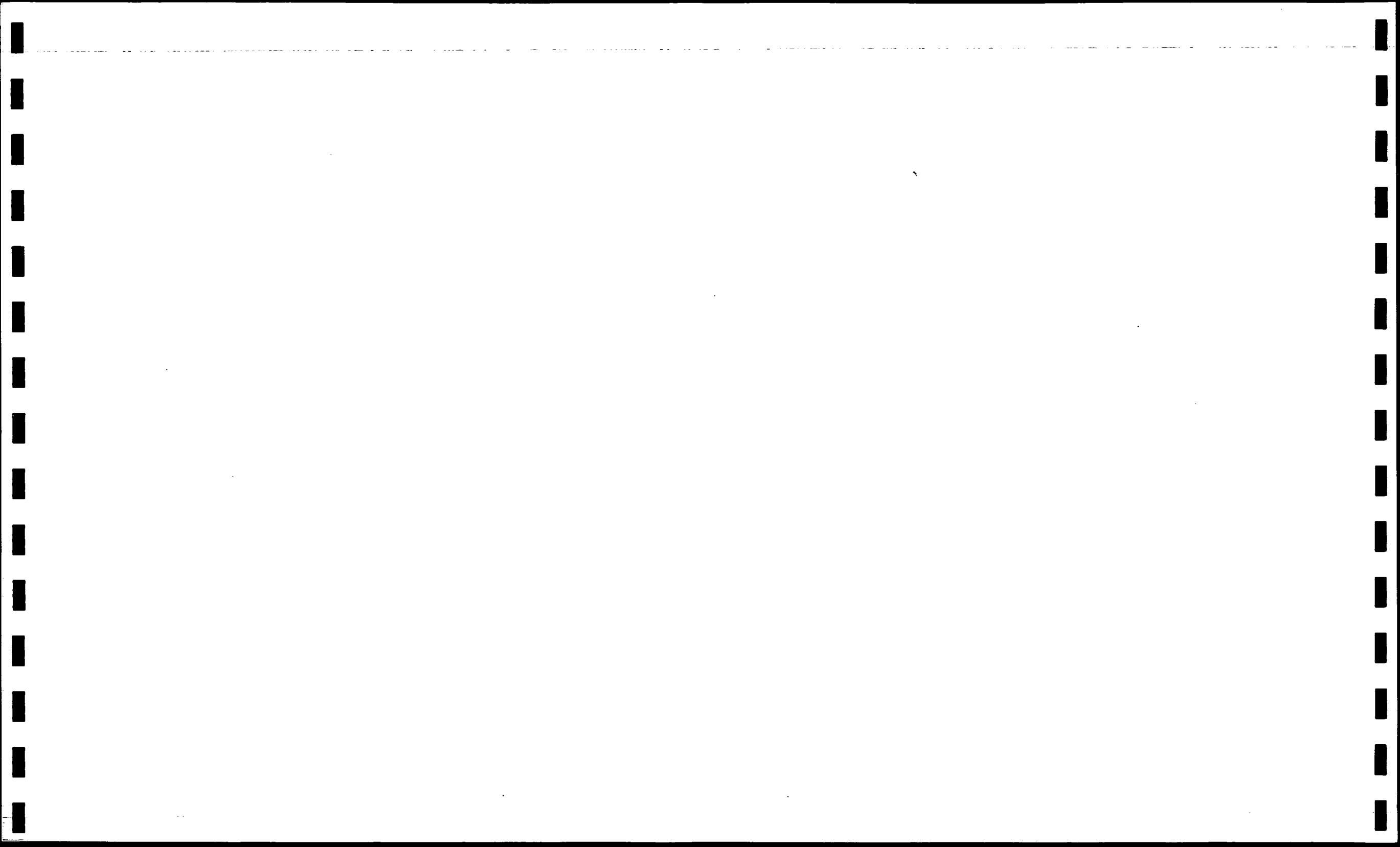
CAPITAL EXPENDITURES

Those items considered as capital expenditures are major investment items for which depreciation must be calculated over the anticipated life, and replacement schedules analyzed:

- a. The School Bus Fleet
- b. Other Service Vehicles
- c. Maintenance Equipment
- d. Transportation Facilities, Including Furniture and Equipment
- e. Real Estate required for Transportation Services
- f. Interest on Investments; relevant Costs of Capital

OPERATIONAL EXPENDITURES

These are the expenditures of the day-to-day operation of the school bus fleet, that include year-to-year supplies, salaries, and materials:



- a. Transportation personnel, including drivers, supervisors, custodial personnel, clerical personnel, and maintenance personnel.
 - 1. Salaries
 - 2. Fringe Benefits
- b. Utilities.
- c. Office supplies and materials, including postage.
- d. Replacement parts, expendable tools and expendable supplies.
- e. Fuel.
- f. Training programs for personnel.
- g. Legal and accounting fees.
- h. Insurance.
- i. Recruitment expenses.
- j. Consulting fees (labor relations).

OTHER EXPENSES

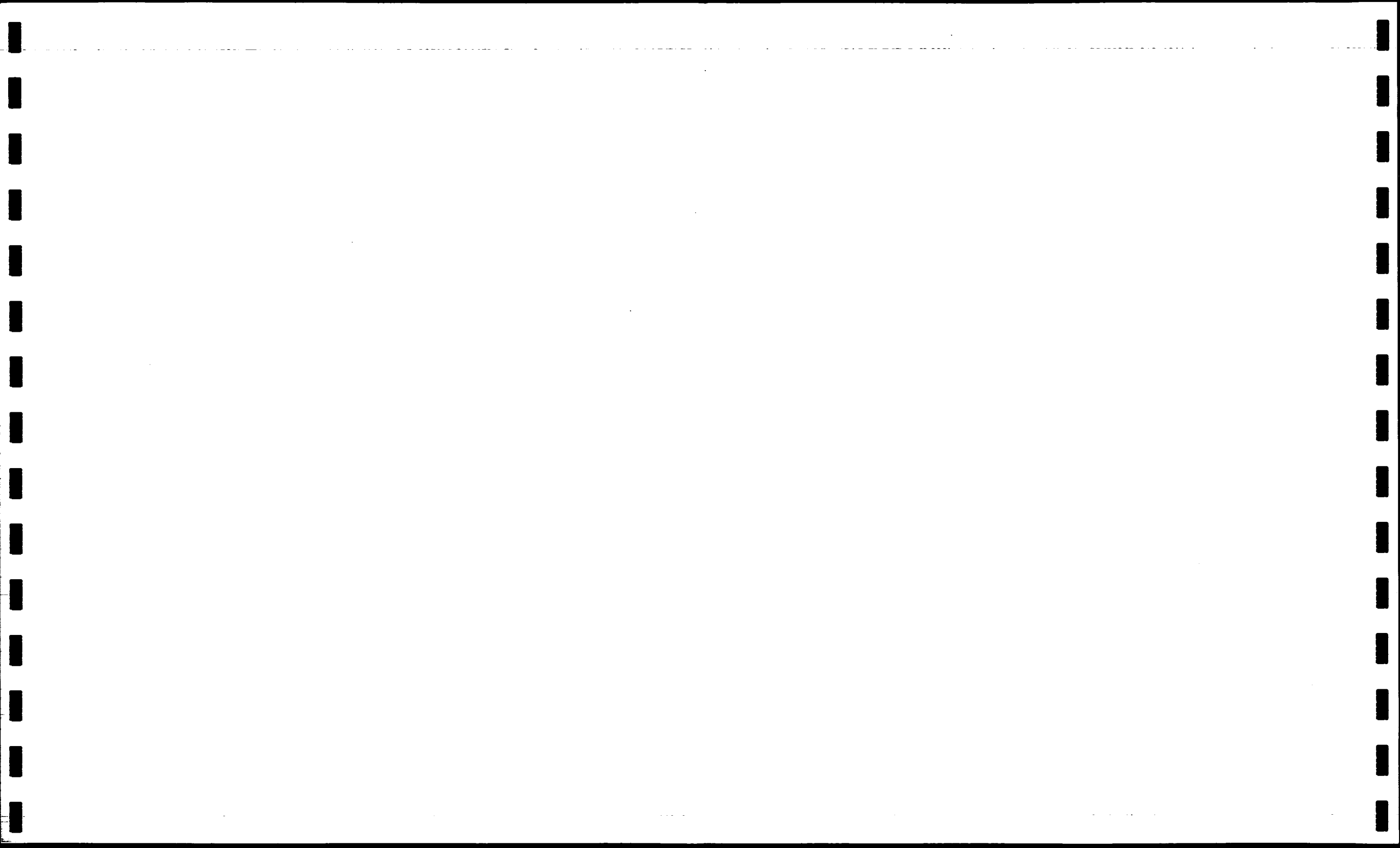
An indirect cost associated with public ownership of school transportation systems is that hidden by a lack of knowledge of the kinds of taxes which might have been collected by the community and/or State had the services been contracted and taxes been collected. These and other considerations would include:

- a. Payroll taxes.
- b. Franchise and inventory taxes.
- c. Real estate taxes.
- d. Gasoline taxes.
- e. Sales taxes.
- f. License and permit taxes.

Data Bank and Data Synthesis

To establish comparability on cost data, an inventory and data bank will be compiled from system performance and operating data.

- a. Number of buses of the school fleet.
- b. Age of the buses.
- c. Power source and fuel of buses.
- d. Capacity of buses.
- e. Number of pupils transported by grade level.
- f. Percent of total pupils transported.
- g. Number of nonpublic school pupils transported.
- h. Total bus mileage.
- i. The average pupil miles per bus.



- j. The cost per bus mile.
- k.. The cost per pupil.
- l. The cost per pupil mile.
- m. Miles of other transportation.
- n. Miles for recreation.
- o. The number of pupils transported beyond eligible mileage limits.
- p. The percent of pupils beyond mileage limits.
- q. The total bus expenses.
- r. The total expenses for other transportation.
- s. Expenditures for transportation beyond limits, the hours of service per bus, the State reimbursement per bus, payments in lieu of transportation, number of driver violations, number of pupil violations.

Wherever possible, existing data concerning the total transportation environment within which the school bus systems operate will be relied on. For example, existing transportation studies carried out by State and regional transportation planning agencies and the State highway department will be applied as required.

Analysis

Once the data bank has been established and information synthesized into manageable terms, we will determine total system costs for

each subdivision and for respective ownership arrangements. In analyzing and comparing subdivisions, consideration will be given to costs common to each ownership arrangement. These are costs that are normally "backed out" or "cancel each other out" in comparative cost studies. We will also consider joint costs, or costs for facilities used jointly by both types of ownership arrangements. We will also consider replacement costs, for example, the costs of replacing older equipment and facilities with comparable facilities in order to make equivalent comparisons. Incremental or marginal costs, that is the cost of carrying one additional pupil, or adding one additional bus to the fleet will be developed in order to determine and compare unit costs for comparable service levels.

Where applicable, the effects of large scale operations versus small scale operations will be tested. Economies of scale will influence cost results and therefore recommendations.

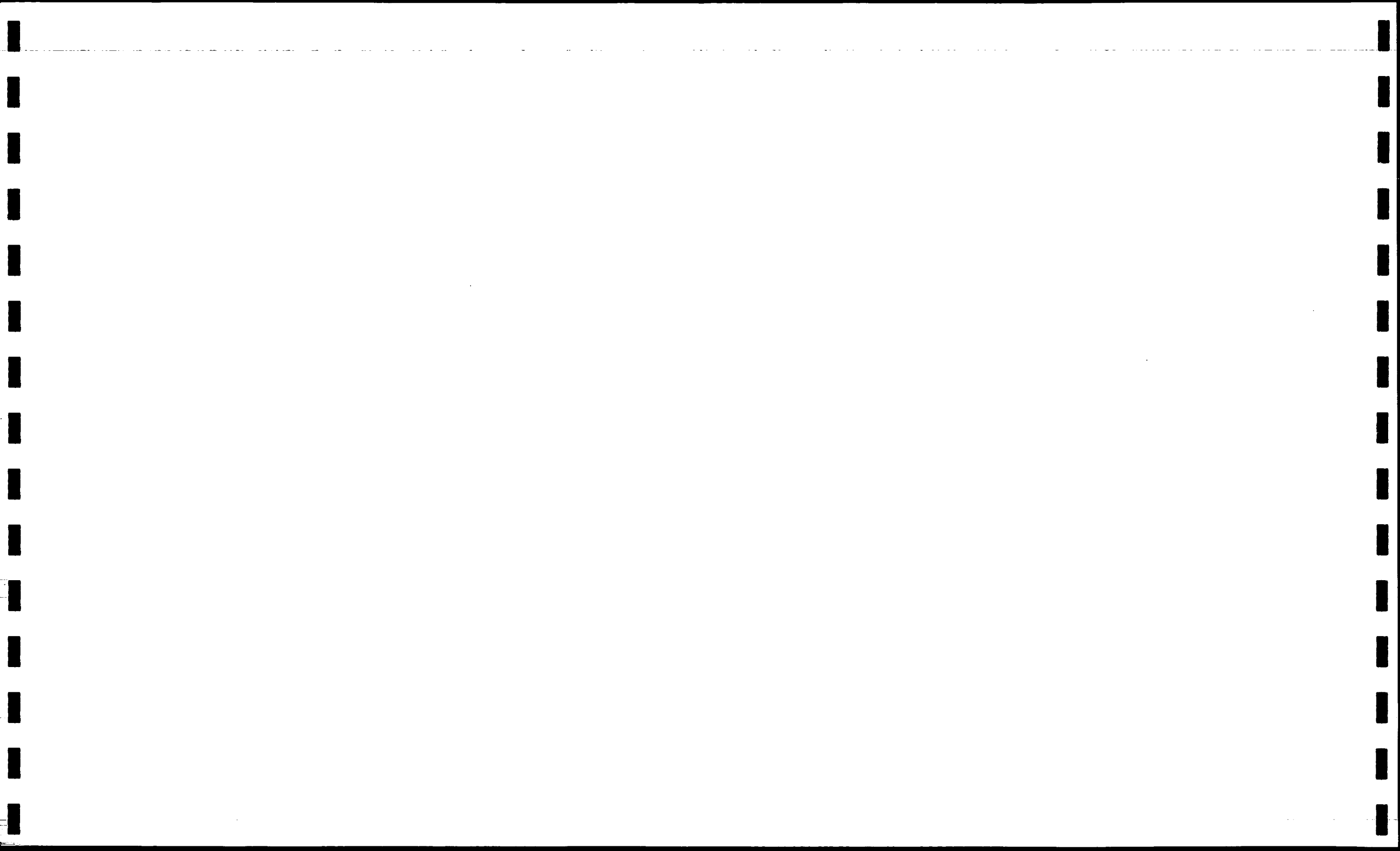
Where necessary in reaching conclusions, we will develop hypothetical comparative data. Hypothetical conversion on paper will be made for:

Private to public ownership

Public to Private

Partial public to all public

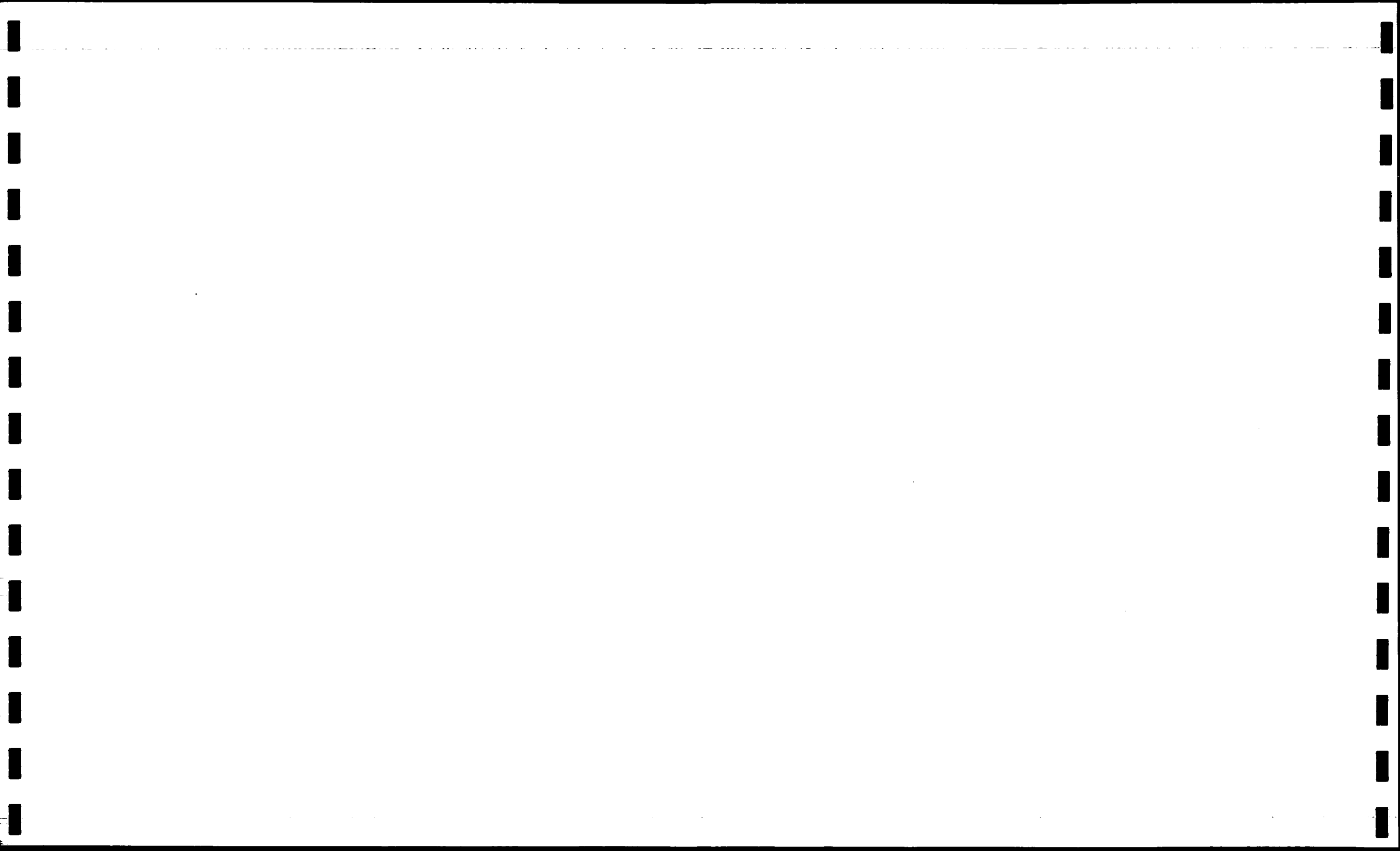
This will apply only to routine bus operations, not to unique service.



Hypothetical costs will be projected over the life of the investment for example, annual costs of developing an initial capital investment for building, busses, etc. Operating, maintenance and other costs will also be projected considering installation. These projections will be developed as required in the analysis for Computer Systems. After all costs are established and projected, they are discounted to the present. This discount flow technique is excellent for developing not only present day costs but also the value of the investment over its life development. This analysis technique is summarized in our Computer Program, OPERATING COST PROGRAM, which we propose to use as required.

Identify System Improvements

Where applicable, improvements to existing system operations will be identified for possible cost reductions, improved efficiency and safety and reliability of operations. Areas for possible savings may be in routing, use of larger, joint facilities, purchasing procedures, improving turnaround time during peak periods, uses during off-peak periods, phased scheduling of hours, and system standardization effects.



III. ANALYSIS OF UNIQUE COST VARIABLES IN THE STATE OF MARYLAND

Any study with State-wide implication must consider those elements of cost which are unique to that State along with legal requirements and restrictions, State population density variability, local taxing, local licensing, and school functional utilization are among the variables which must be considered.

The State of Maryland varies from ultra-urban-cosmopolitan Baltimore City, to the Baltimore-Washington suburbs, to the very rural outlying counties. The requirements for transportation and the implications for private and public ownership and operation of school transportation created by this wide divergency must certainly receive emphasis in the study.

Other characteristics which may be unique to the State and should be included for study are:

1. Use of busses for non home-to-school functions such as field trips, scholastic events, recreational activities, vocational-technical center transit, and special education pupil transportation.
2. Discretionary routes, limitations, and practices.

In the conduct of this portion of the study, the Consultants shall:

1. Collect Data:

Research existing State and local laws governing bussing in Maryland

Study the State population distribution data

Identify and compare the taxing and licensing regulations for public and private operation of transportation needs

Identify the significance of urban vs rural and suburban transportation needs

Identify the non home-to-school uses which are currently being made of busses in each of the subdivisions and state policy governing such use

Identify the practice and governing regulations which pertain to discretionary routing.

2. Analyze Data:

The six data areas will each be analyzed for cost implications

The cost implications for public ownership and for private ownership will be compared.

The basic purpose of this element of the study is to determine if legal requirements, existing practice, and/or population characteristics which are unique to the State of Maryland provide a cost advantage to either public or private ownership and operation of a school bus transportation system.

IV. ANALYSIS OF STATE FORMULA FOR REIMBURSEMENT

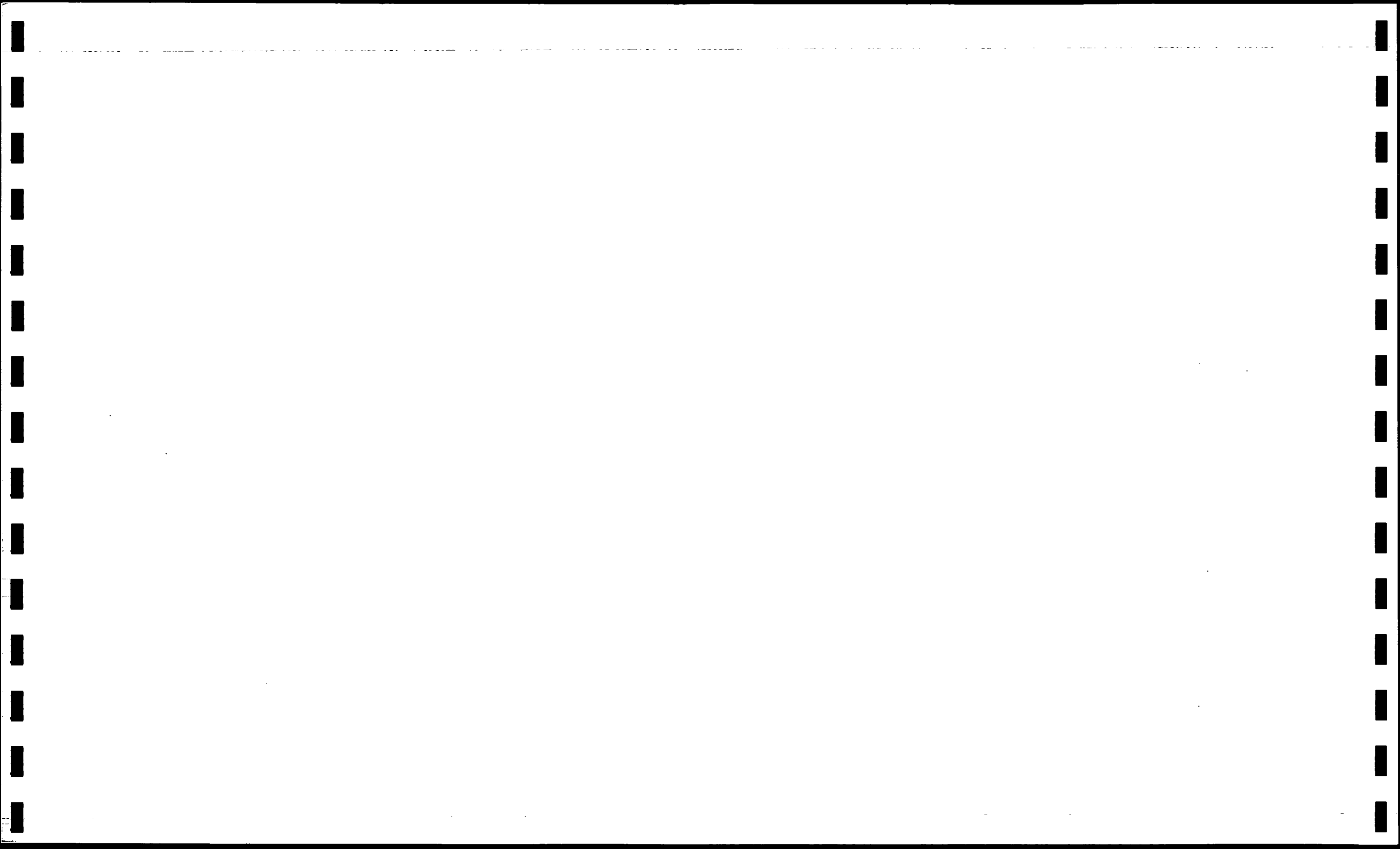
The existing formula for reimbursement of transportation costs in the State of Maryland will need to be reviewed and analyzed in the conduct of the study. This formula will be analyzed from three distinct points of view:

To determine the equitability and sufficiency.

In comparison with the formulae of other States.

In comparison with the ability of the State and/or local jurisdictions to provide funds for transportation.

The basic intent of this portion of the study will be to determine if the existing reimbursement formula provides an advantage for either public or private ownership and operation of the transportation network. A secondary thrust will be the recommendation for changes to the formula if the analysis reveals circumstance which warrent.



V. ANALYSIS OF ATTITUDINAL FACTORS (OPTIONAL)

When decisions are made about pupil transportation, there are usually reactions by some segment of those affected. The attitudes of those who will be concerned with the outcomes of decisions should, therefore, be assessed in the conduct of the study.

In the case of school personnel, all those elements which may affect their schedule of classes, work schedule and transportation related educational activities, should be considered.

The public concern and reactions to change of schedule or money considerations should be understood when recommending certain courses of action. Armed with the advanced knowledge of potential adverse reaction, a public information program can be undertaken. This study should include an assessment of the public's present and potential reactions to transportation costs, and type (public, private).

Since the legislature will make the decision about pupil transportation in the final analysis, it will be important that the report indicate as far as possible the general attitudes found in the communities served.

In the conduct of this portion of the study, the Consultants shall:

1. Gather Data:

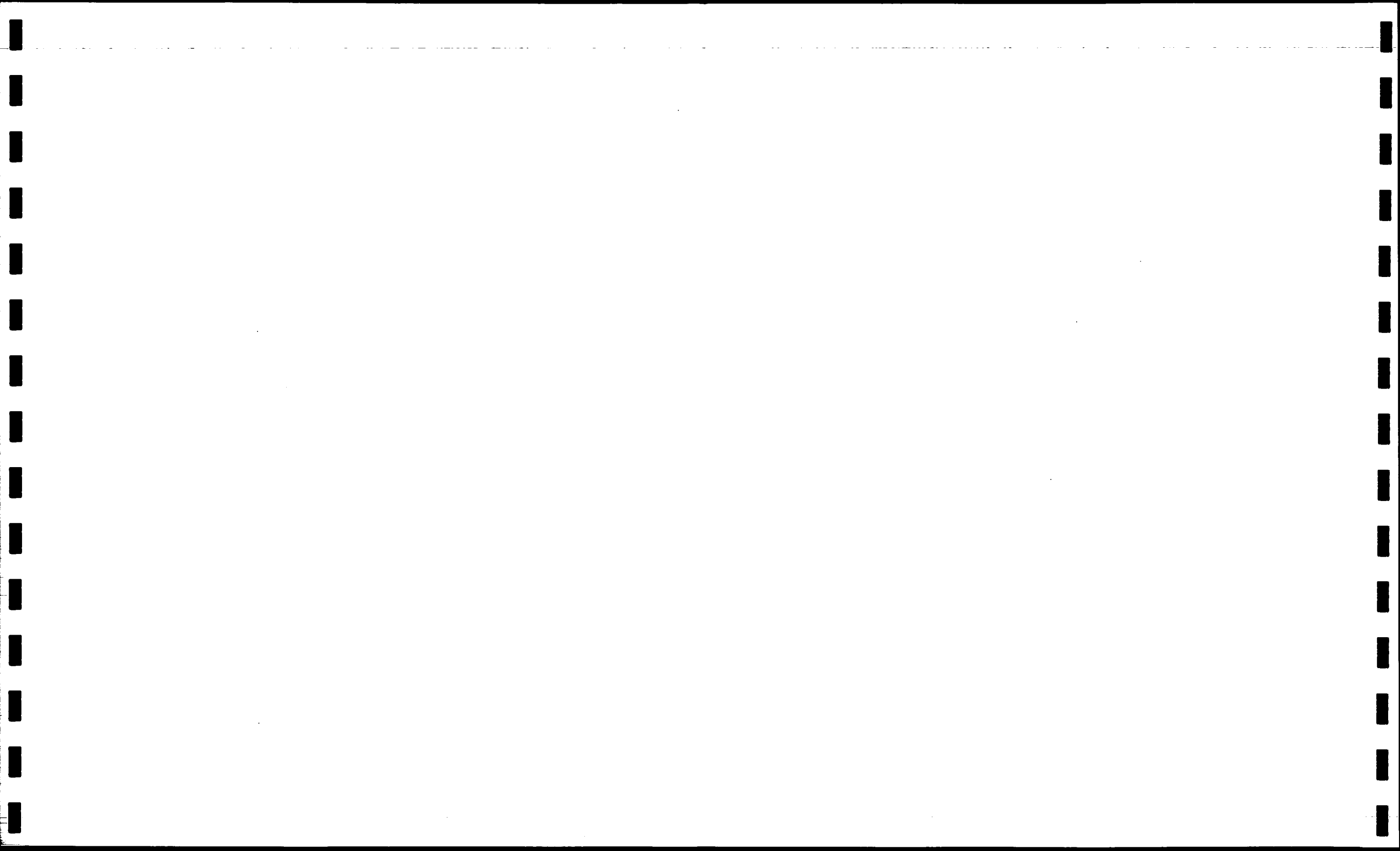
Conduct at least two group interviews with members of the organized groups in each of the subdivisions. It is assumed that local school personnel will assist in the identification and invitation of those individuals who can represent the community.

Develop, test, and distribute a questionnaire to a sample population. The questionnaire will be designed to supplement and broaden information gained in the interviews.

2. Analyze Data:

A statistical analysis of the sample surveyed will be made and projected over the total population.

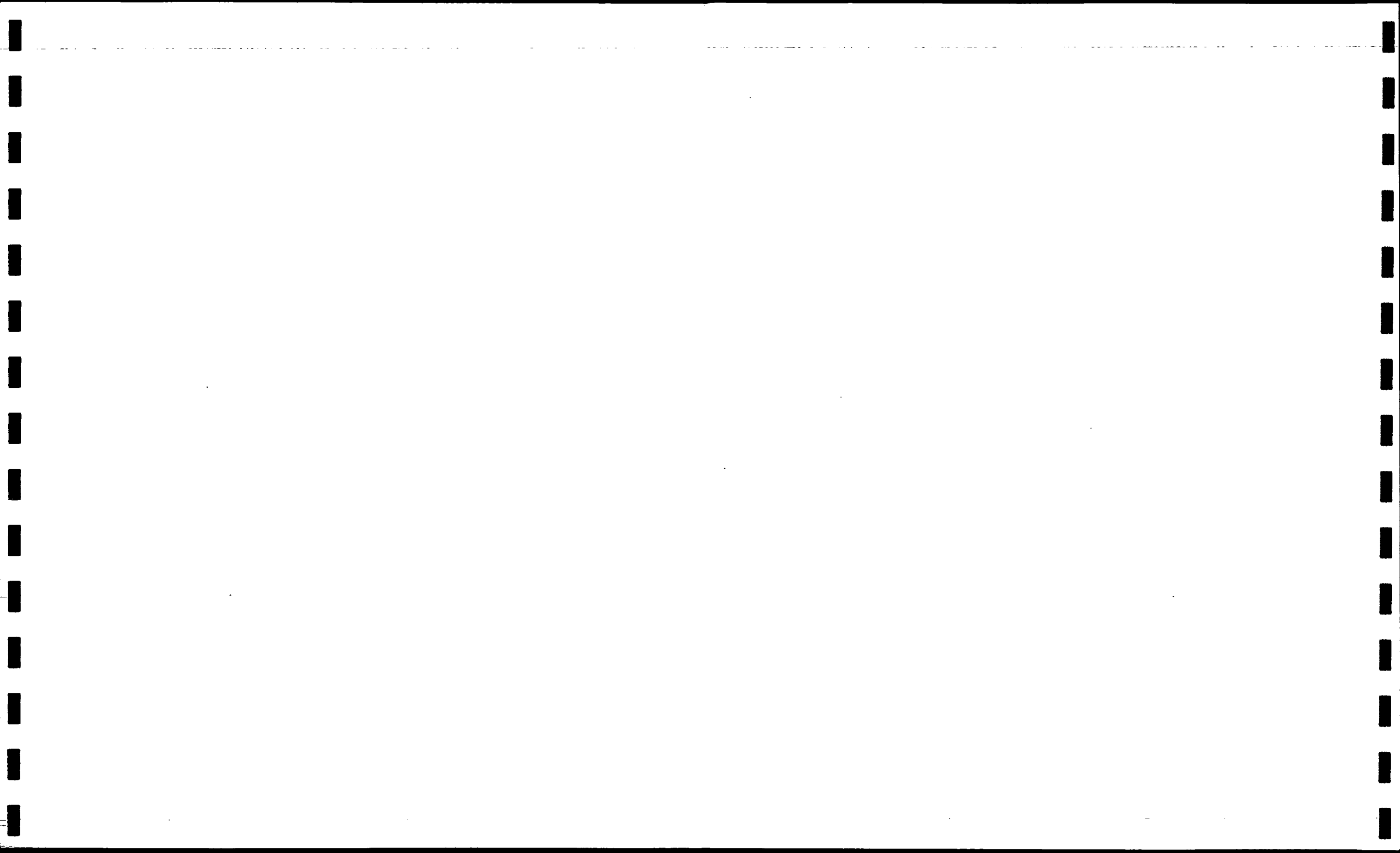
A summary of attitudinal impact will be made and included in the final report.



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PROJECT WORK PLAN AND SCHEDULE

I. ANALYSIS OF PHILOSOPHICAL ASSUMPTIONS

- A. Conduct Interviews with Local School Administrators, Public and Private Bus Systems Management
- B. Collect Written Policies
- C. Compare Philosophies
- D. Compare Policies
- E. Identify Areas of Implication
- F. Compare Behavioral Differences
- G. Compare Public-Private Management Philosophies, Procedures, Attitudes
- H. Identify Advantages-Disadvantages

II. ANALYSIS OF DIRECT AND INDIRECT COSTS

- A. Conduct interviews with Local School Administrators, Public and Private Bus Systems Management.
- B. Examine Bus Fleets
- C. Define System Performance
- D. Determine Management Effectiveness, Maintenance Policies, Safety Policies, Reliability Levels, Comfort Levels
- E. Develop Total Costs
- F. Synthesize Data and Data Bank
- G. Data Analysis
- H. Identify System Improvement.

III. ANALYSIS OF UNIQUE COST VARIABLES

- A. Research State and Local Laws
- B. Study State Population Distribution Data
- C. Identify and Compare Taxing and Licensing Regulations
- D. Identify and Compare Urban, Rural, and Suburban Transportation Needs
- E. Identify Non Home-To-School Uses of Busses

- F. Identify Discretionary Routing Practice and Regulations
- G. Analyze Data for Cost Implications
- H. Compare Cost Implications for Private and Public Operations

IV. ANALYSIS OF STATE REIMBURSEMENT FORMULA

- A. Analyze Maryland State Formula
- B. Compare Maryland Formula to That of Other States
- C. Analyze State-Local Capability for Support
- D. Determine Necessary Changes
- E. Determine Public-Private Advantage

V. ANALYSIS OF ATTITUDINAL FACTORS (OPTIONAL)

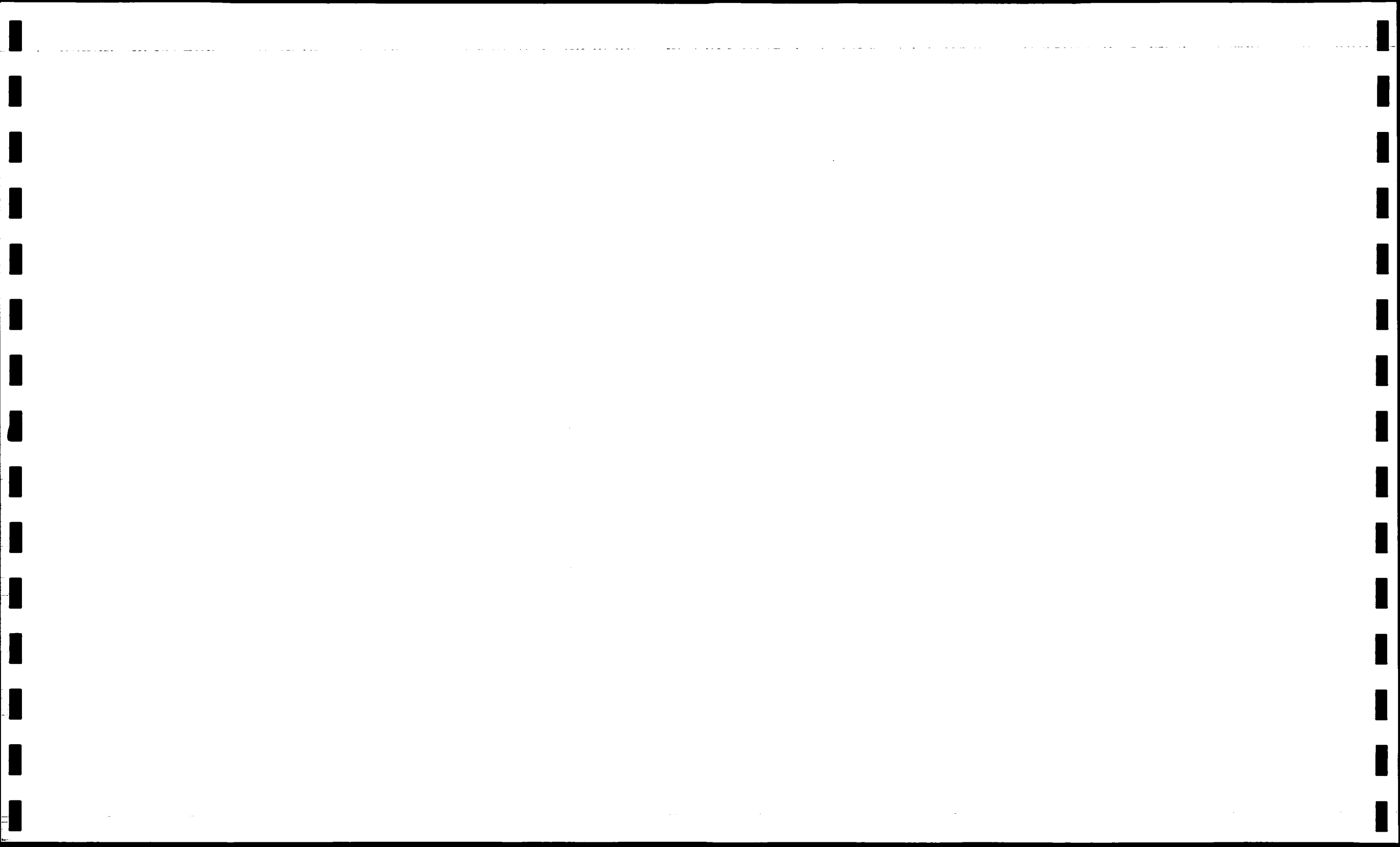
- A. Conduct Group Interviews
- B. Develop Questionnaire
- C. Test Questionnaire
- D. Distribute Questionnaire
- E. Follow-Up for Return of Questionnaire
- F. Analyze Data Inputs
- G. Project to Total Populations
- H. Summarize Attitudinal Inputs

VI. PROJECT REPORTS

- A. Report #1
- B. Report #2
- C. Report #3

VII. FINAL REPORT

VIII. FOLLOW-UP



TIMELINE AND PHASING CHART

FEB			MAR			APR			MAY			JUN			JUL										
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TASK I

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TASK II

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C	XXXXXXXXXXXXXXXX
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E	XXXXXXXXXX
F	XXXXXXXXXX
G	XXXXXXXXXXXXXXXX
H	XXXXXXXXXX

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TASK III

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C	XXXX
D	XXXXXXXX
E	XXXXXX
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G	XXXXXX
H	XXXXXXXXXX

TASK IV

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C	XXX
D	XXXX
E	XXXX

TASK V

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TASK VI

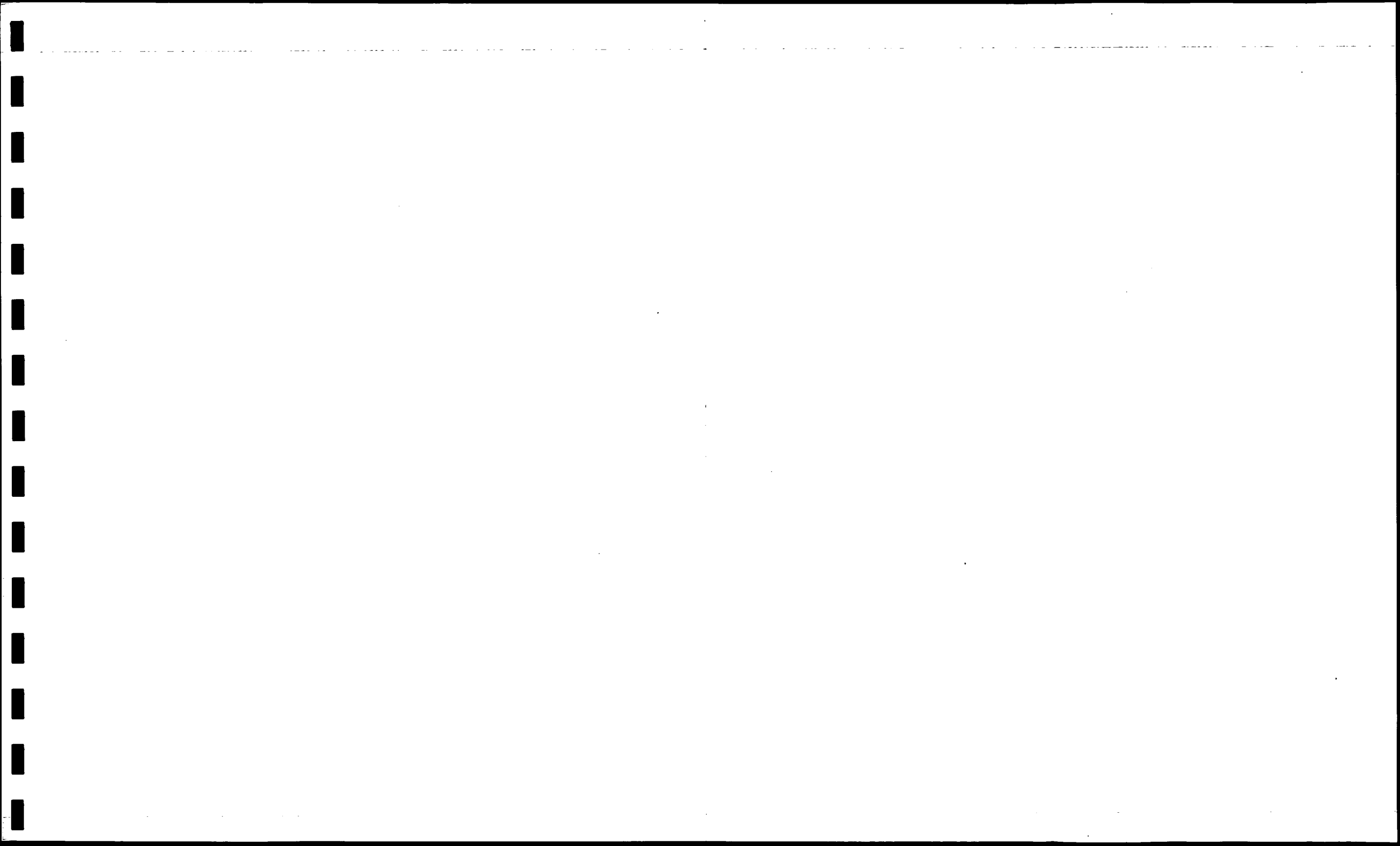
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B	X
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TASK VII

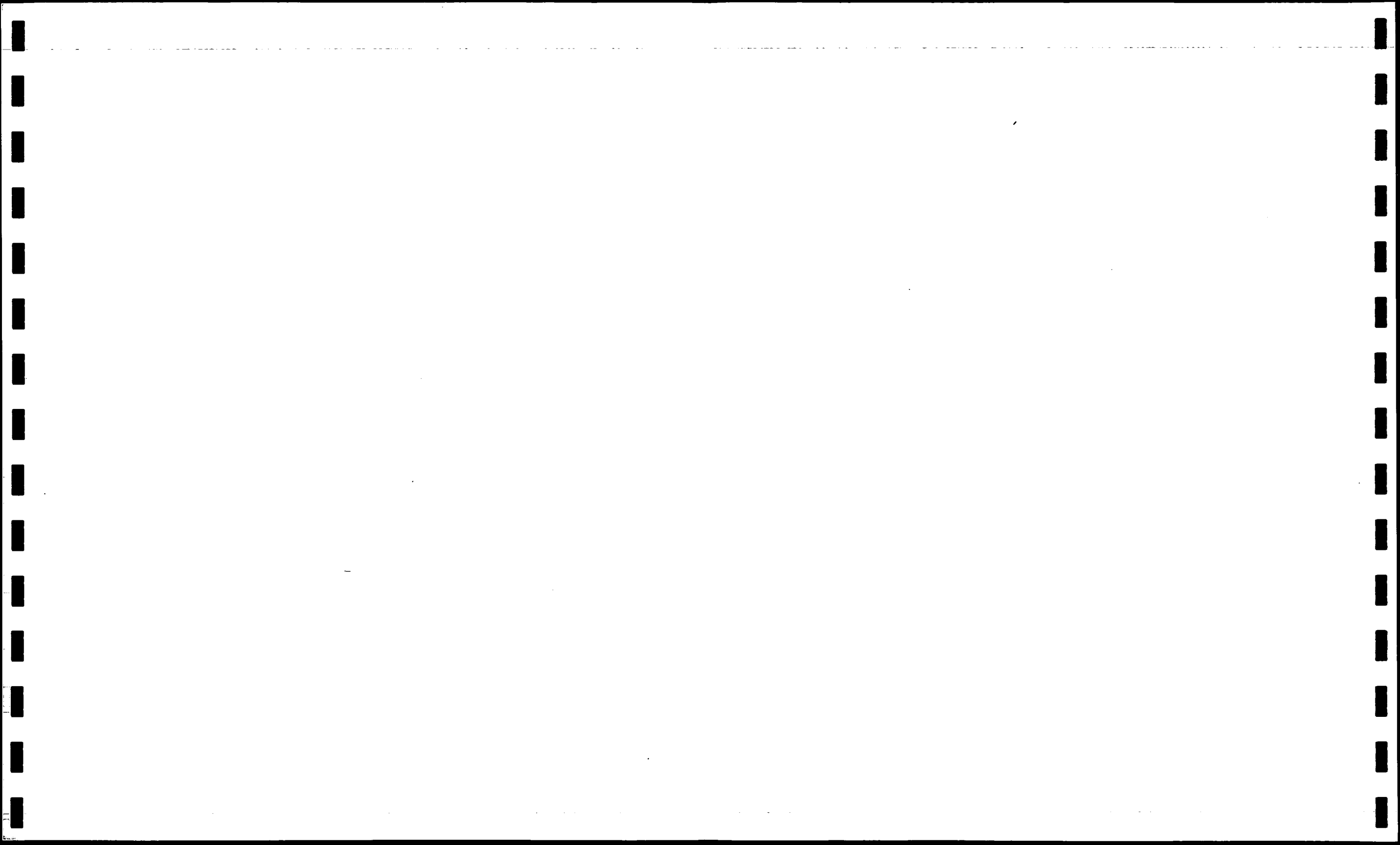
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TASK VIII

(THREE CONFERENCES DURING PERIOD AUG. 1, 1971 - FEB. 1, 1972)



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DAVIS MACCONNELL RALSTON/WESTINGHOUSE LEARNING CORP.

CAPABILITIES

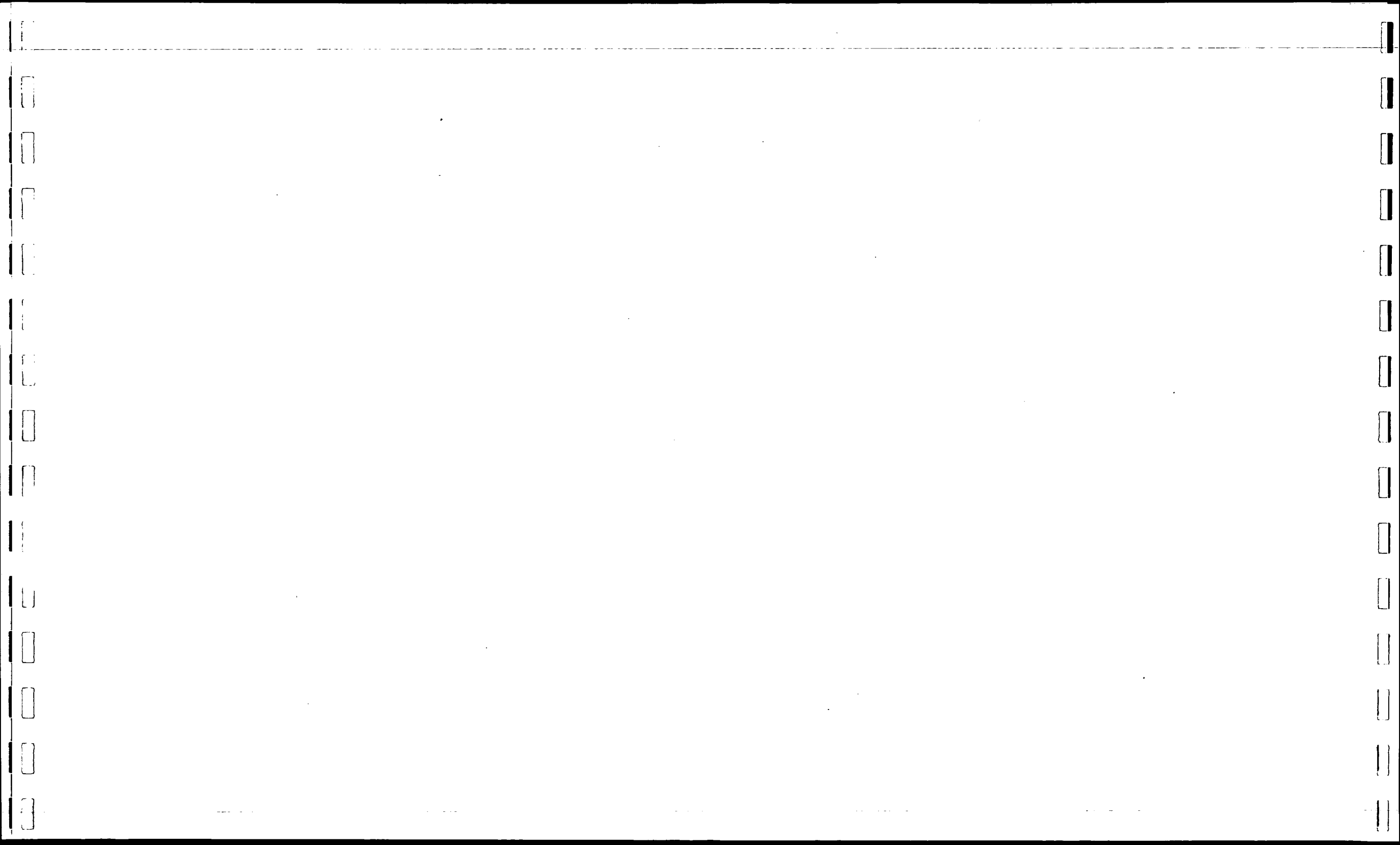
Davis MacConnell Ralston, a division of Westinghouse Learning Corporation, is a nationwide and internationally recognized educational consulting organization.

The company has capabilities to assist schools and colleges in a wide variety of services, including development of master plans, curriculum and program analysis and planning, educational facility planning, instructional strategy and methodology, staff inservice training, educational media systems design, administrative organization and informational systems, financial planning and programming, furniture and equipment layout and design, and planning for rehabilitation and renovation of existing facilities.

DMR/WLC has had specific experience in public school transportation studies at Granite School District, Los Altos School District and Santa Cruz City Schools - all in California. DMR/WLC has also had extensive experience with the Maryland State College System.

The company has been in operation for approximately fifteen years and has conducted nearly three hundred consulting assignments in the field of education for public and private schools, colleges, and universities, both in the United States and in other countries. It has also been involved in related services for government, business and industry. A representative lists of clients is shown on the following page.

Resumes of the project team members follows the client list.



**Four-Year Colleges and Universities
(Public and Private)**

Bairat College
Bairat, Victoria, Australia

Bauru University
State of Sao Paulo, Brazil

Bendigo College
Bendigo, Victoria, Australia

Brigham Young University
Provo, Utah

City College
New York City, New York

Delaware State College
Dover, Delaware

Friends University
Wichita, Kansas

La Verne College
La Verne, California

Loyola University of Los Angeles
Los Angeles, California

Marymount College
Palos Verdes Estates, California

Nevada Southern University
Las Vegas, Nevada

Richmond College
Staten Island, New York

Stanford University
Stanford, California

Sydney Institute of Technology
Sydney, New South Wales

Tasmanian College of Advanced Education
Hobart, Tasmania, Australia

Towson State College
Baltimore, Maryland

Universidad Del Antioquia
Medellin, Colombia, South America

Universidad Del Valle
Cali, Colombia, South America

**Elementary and Secondary Schools
(Public and Private)**

Alameda Public Schools
Alameda, California

Amador Valley Joint Union High School District
Pleasanton, California

Bennington Public Schools
Bennington, Vermont

Bettendorf Community School District
Bettendorf, Iowa

Brentwood Union Free School District
Brentwood, Long Island, New York

Burleson Independent School District
Burleson, Texas

Capistrano Unified School District
Capistrano, California

Cheyenne Public Schools
Cheyenne, Wyoming

Chicago Public Schools
Chicago, Illinois
Philadelphia Public Schools
Philadelphia, Pennsylvania

Phoenix Union High School System
Phoenix, Arizona

Piedmont Unified School District
Piedmont, California

Pittsburgh Public Schools
Pittsburgh, Pennsylvania

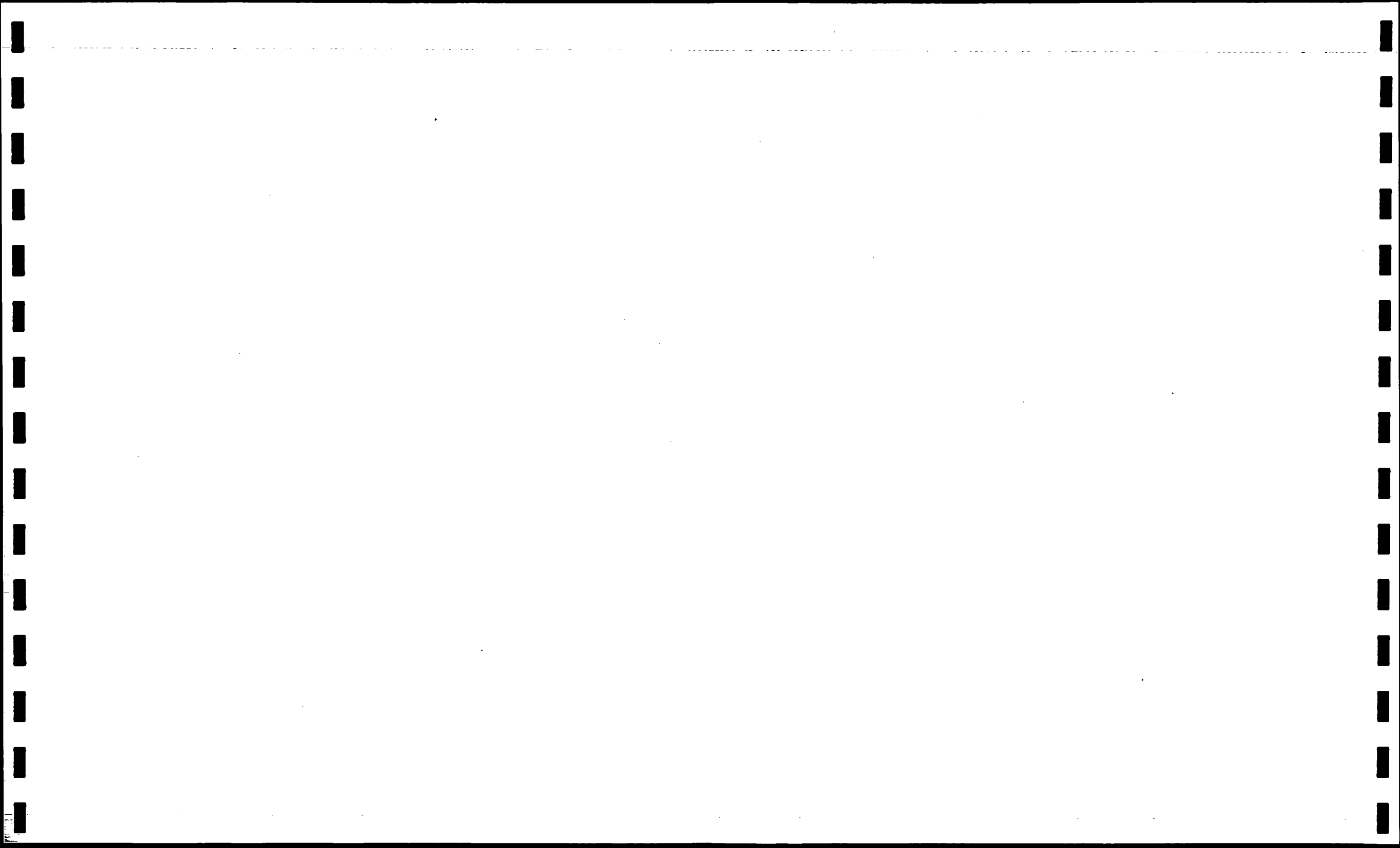
Pleasanton School District
Pleasanton, California

Princeton Regional Schools
Princeton, New Jersey

Renton School District
Renton, Washington

Rockford School District
Rockford, Illinois

St. James Day School
Kent, Washington



PROFESSIONAL PROFILES

ROBERT N. INGRAHAM

Robert N. Ingraham is Director, Planning Services Division of Westinghouse Learning Corporation. He provides direction and coordination of the activities of all project directors performing consulting services for all clients. He has had experience in organization and administration of instructional programs and school district management.

Dr. Ingraham is author, or co-author, of numerous publications in the field of school administration and planning, including master plans for school districts, educational specifications, vocational education services, policies for boards of education, administrative procedures, administrative organization studies, educational program analyses, curriculum guides, facility analyses, reorganization and unification studies, salary studies, and manuals for employees, parents, and students.

Before his affiliation with the company, Dr. Ingraham had been in the field of education for fourteen years - as teacher, master teacher, vice principal, principal and superintendent of schools. He has served at the local and intermediate unit levels and has conducted state-wide projects in analysis of school district reorganization and administrative staffing ratios.

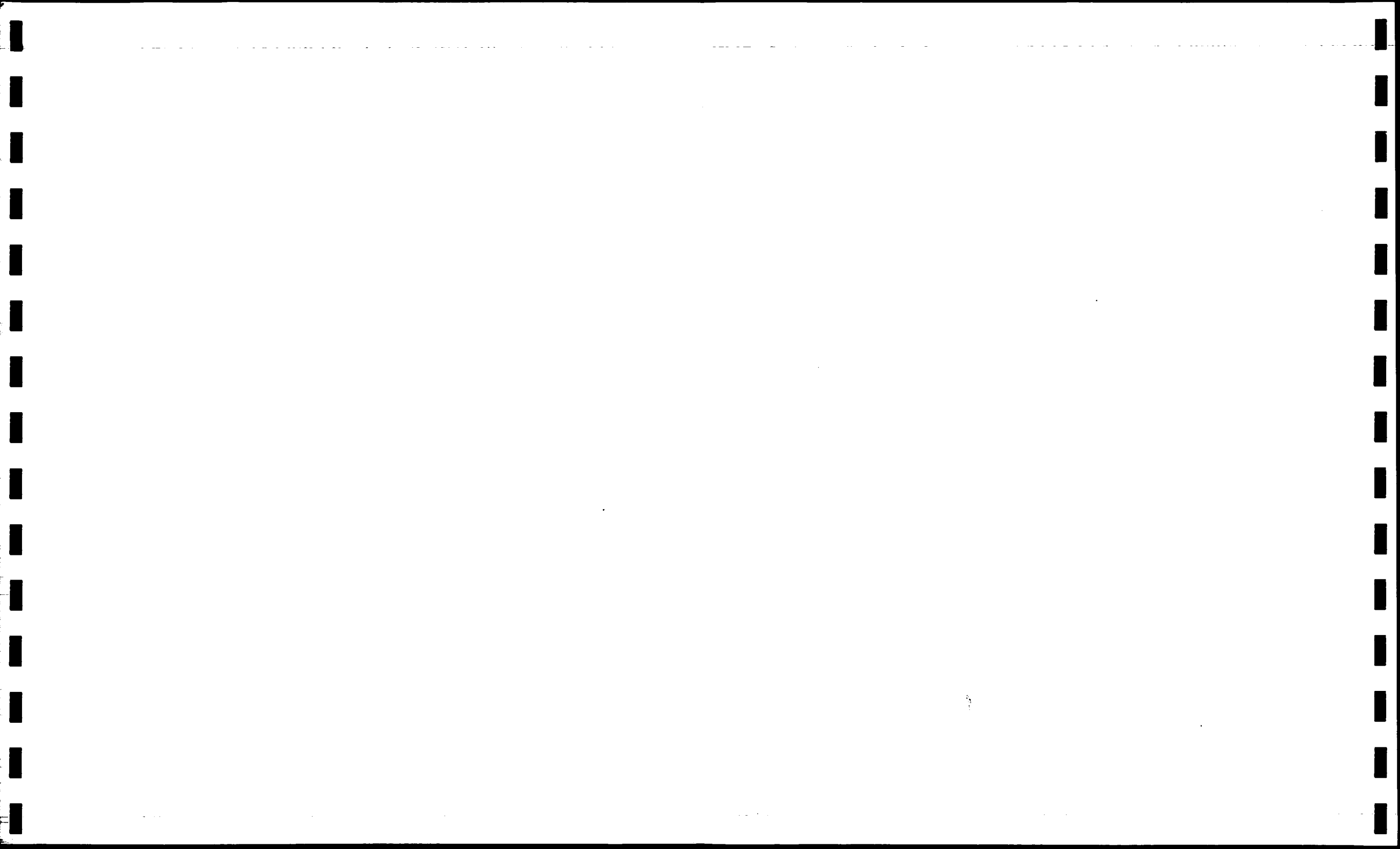
PROFESSIONAL PROFILE

LARRY G. RAMSEY

Larry G. Ramsey is Managing Associate for Planning Service Division of Westinghouse Learning Corporation. He provides management, coordination and operational control of master plans, educational specifications, and other educational consulting activities. He has had experience in staff organization, communication, school management and classroom teaching.

Mr. Ramsey has managed the development of over fifty master plans and educational specifications for elementary, secondary and higher education. Each of these projects required considerable community and staff involvement and each demanded a thorough understanding of student, curricular, staff, facility and fiscal relationships.

Before his affiliation with the company, Mr. Ramsey had been in the field of public education for ten years as teacher and administrator. During his public school career, he developed and implemented innovative staffing and program approaches including relating vocational/technical education to the main-stream curriculum.



PROFESSIONAL PROFILE

CHARLES D. SULLIVAN

Charles D. Sullivan, Consultant, has special capabilities in management and the application of media technology to curriculum. He has had experience in business and education planning, organization, administration and school district management.

Mr. Sullivan has participated in projects as a technical specialist in media/technology and in staff development activities. He also has the responsibility to provide the Planning Service Division of Westinghouse Learning Corporation with pre-contract liaison with potential clients.

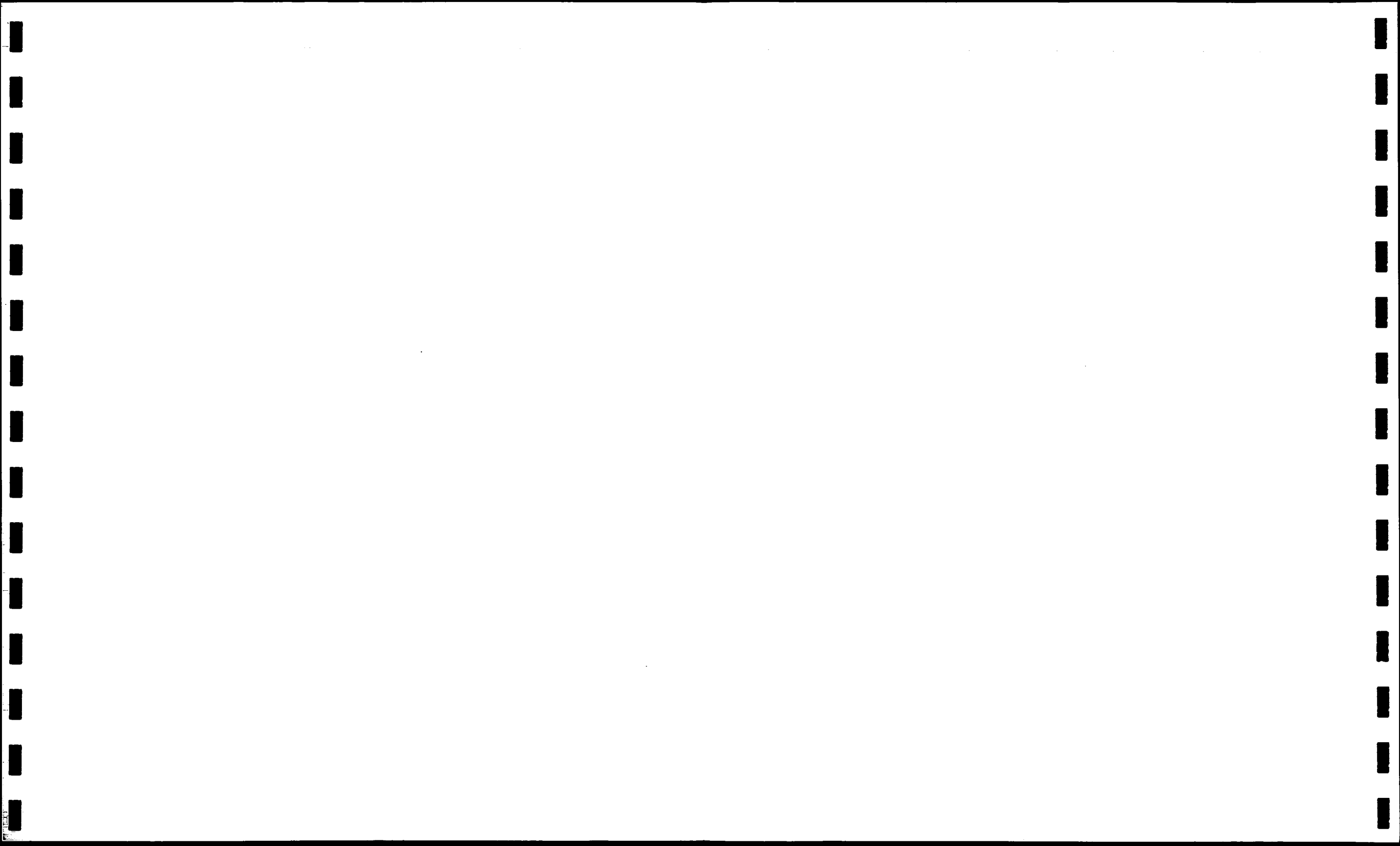
Before his affiliation with the company, Mr. Sullivan had eighteen years experience as a planner, university faculty member, audiologist and technical educator. He has served as a member and President of a Board of Education and, thus, is conversant with educational problems as seen from both lay and staff points of view.

PROFESSIONAL PROFILE

TIMOTHY L. WHITTIER

Timothy L. Whittier, Consultant, has special talents in urban educational planning and demographic analyses. His experience encompasses detailed analyses of population, enrollment, occupational characteristics, statistical studies, land use planning, school finance, educational specifications and implications for site and facility planning derived from the inter-related community characteristics.

Mr. Whittier has conducted over twenty in-depth analyses of the population and enrollment characteristics of school districts. He has directed detailed studies of vocational-technical programs and their relationship to the job market. In addition, his expertise has contributed to numerous other consulting assignments in facility planning, concept development, new town comprehensive planning, and a variety of education-oriented activities.



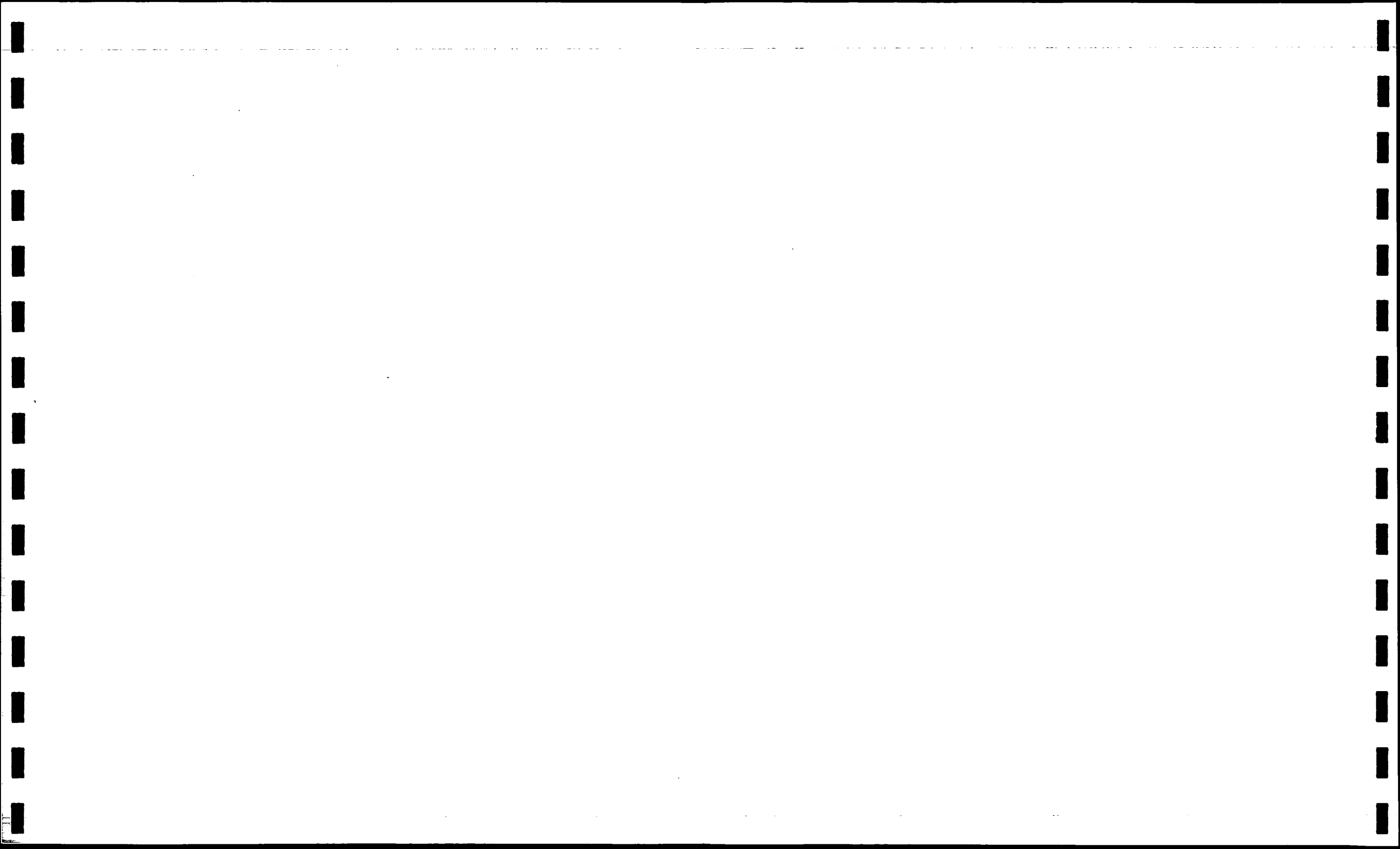
PROFESSIONAL PROFILE

JAMES P. BROWN

James P. Brown, Consultant, has special capability in facilities review and construction management. He has had experience in facilities operations, maintenance, construction and management.

Mr. Brown has participated in numerous projects as a technical specialist in facility evaluation, architect relations and building site evaluation. He also provided the technical skills for facilities evaluation in a national survey of pre-school educational programs.

Before his affiliation with the company, Mr. Brown had fifteen years of experience as a school facilities director, field test engineer and construction supervisor.



MOBILITY SYSTEMS CO.

CAPABILITIES

Mobility Systems Co brings together the abilities to plan, analyze, design, and place transit systems in operation effectively and economically. Markets served include government agencies - including municipalities, airports, developers, and universities.

Mobility Systems Co operates as a joint venture between Brown and Root, Inc. and the Hines Interests.

Mobility Systems Co provides a combination of unique capabilities and experiences in transportation system development, design, implementation and operation, construction, and real estate planning and development.

Mobility Systems is committed to realistic system design and implementation, cost effectiveness, and analysis and application of bus and rapid transit systems to both existing and planned environments to maximize the values created by efficient transportation.

Brown & Root, the nation's largest engineering/construction firm, is a subsidiary of Halliburton Co. Gerald D. Hines is a leading investment builder and developer in Houston.

Mobility Systems has its office at 1245 Post Oak Tower, Houston, Texas 77027.

MOBILITY SYSTEMS CO

Experience in Transportation

Listed below are significant projects in which Mobility Systems Co personnel, in one or more of the following functions, has participated - project engineering, project management, application engineering, preliminary system design, system and component design, and system studies and evaluation.

DOT/Port Authority of Allegheny County sponsored -
Transit Expressway Development Program, Phase I

DOT/Port Authority of Allegheny County sponsored -
Transit Expressway Development Program, Phase II

DOT/Port Authority of Allegheny County sponsored -
T.E. Preliminary Engineering (Technical Study) for
Early Action Program - 11 mile system - Phase III

Developed Operating Cost Computer Program

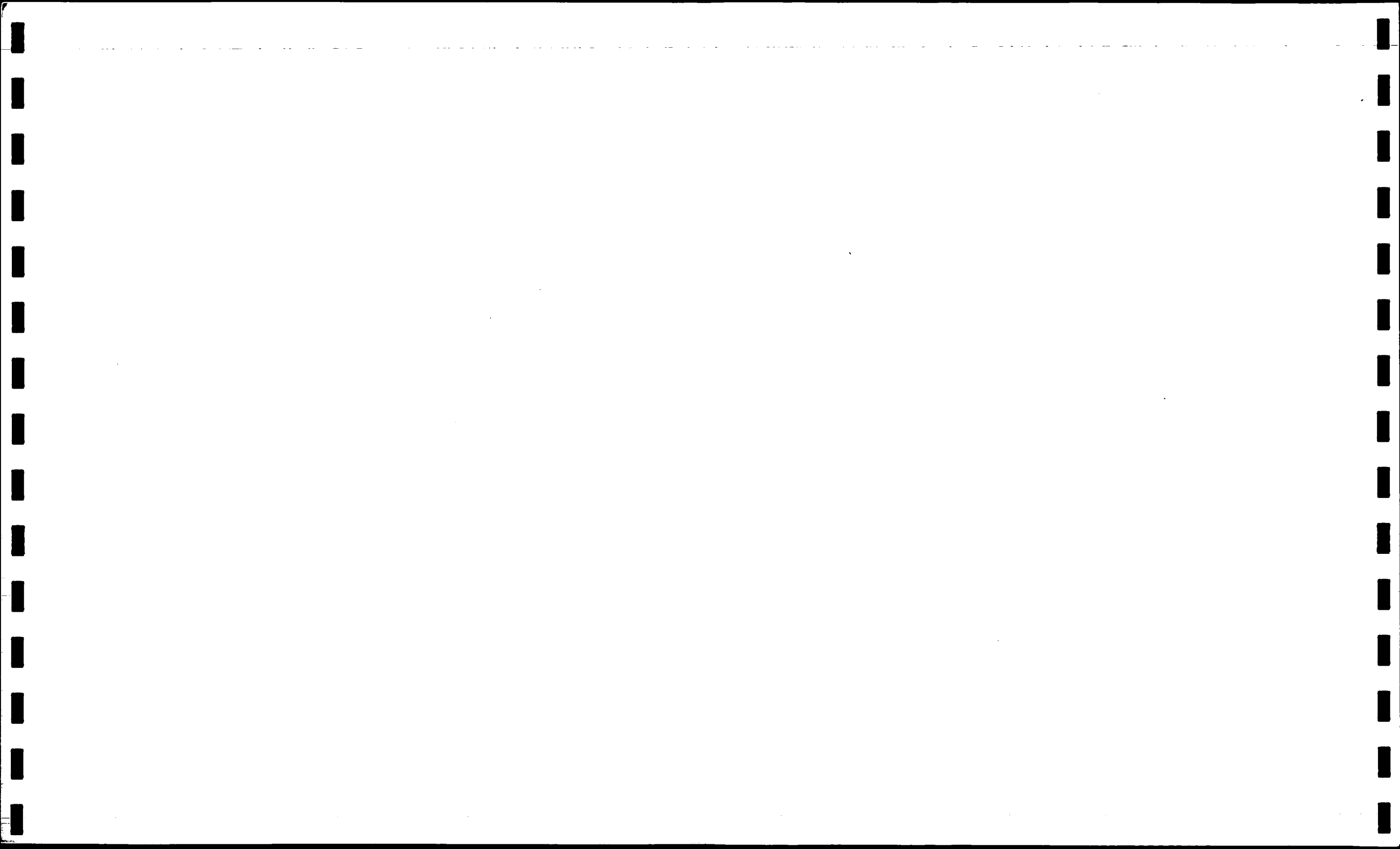
Pittsburgh Radpi Transit System -
Comparative Operating Cost Study

Allegheny County Rapid Transit Study -
System Performance and Cost Comparison inputs

Honolulu, train performance and preliminary cost estimates

Tampa International Airport
Intra-Airport Transportation System

Sea-Tac International Airport
Intra-Airport Transportation System



Experience in Transportation (continued)

Galleria/Post Oak Transit System

- Preliminary engineering
- System specification support

City of Baltimore

- Vehicle system evaluation inputs

DOT/OHSGT Study of power systems for TACRV and high speed trains

System Development Program -

- Major Activity Center Vehicle System

DOT/APL -

- Westinghouse Vehicle System for Major Activity Centers

San Juan, P. R.

- Evaluation of alternative car systems

Memphis, Tennessee

- Preliminary system application inputs

Long Island Railroad

- Battery powered train

Effect of car width on system application

Airports - Application Engineering

- Atlanta International

- Boston-Logan

- Chicago-O'Hare

- Dallas/Fort Worth

- Denver - Stapleton

- New York - Kennedy

- Los Angeles - International

Experience in Transportation (continued)

Airports - Application Engineering (continued)

- Memphis

- Montreal

- Newark

- Oakland, California

- Paris Nord

- Greater Pittsburgh

- Portland, Oregon

- St. Louis - Lambert

- San Francisco

Major U.S. Airports

- Market survey of transportation systems and potential applications

Universities - Application Engineering

- University of Georgia at Athens (a comparative bus study)

- University of Texas at Austin

- University of Massachusetts at Boston

Urban Centers - Application Engineering

- Bunker Hill, Los Angeles

- Sea-Tac Airport

- Downtown Pittsburgh

- Disney World

- Columbia, Maryland (a comparative bus study)

- Coral Springs, Florida

- Nassau County, L. I.

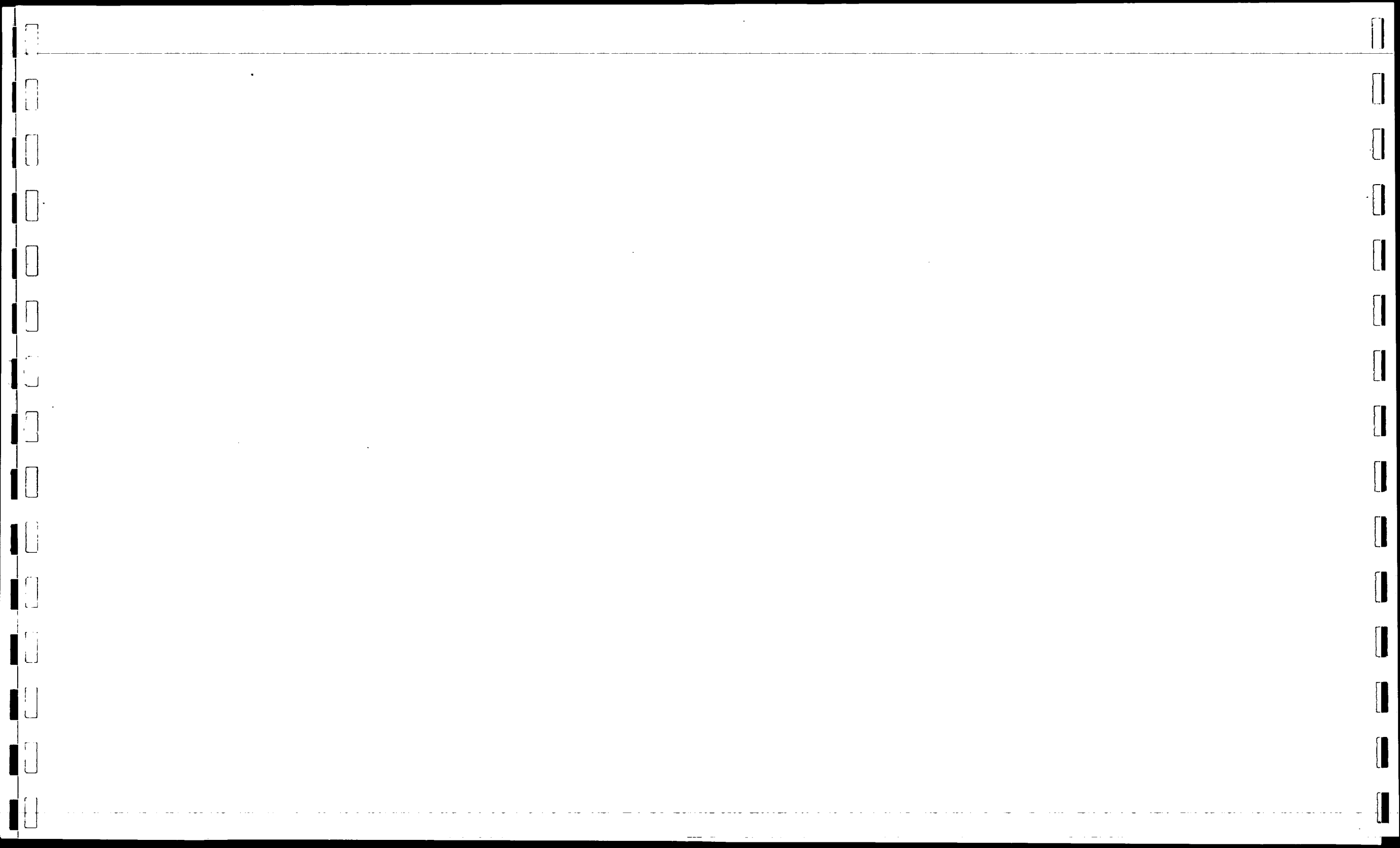
- San Juan, P. R.

- Mon Plaza, Pittsburgh

- Nashville, Tennessee

Special Assignments

- Port Authority of Allegheny County Rapid Transit Technical Comm.
- Pittsburgh Section, ASCE, Urban Development and Transportation Gp
- Governor's Committee, Pennsylvania, Site selection TACRV Test Facilities



PROFESSIONAL PROFILE

JOHN K. HOWELL

John K. Howell is serving as managing partner in charge of systems engineering and project management activities of Mobility System co.

For the past 24 years, he was associated with Westinghouse Electric Corporation at Pittsburgh, St. Louis and Dallas. He served in application engineering, management and systems development capacities in transportation, electrical power, aviation, petroleum and chemical and control computer industries.

Since 1963 he served as project manager for the Transit Expressway demonstration project, Vehicle Systems Engineering manager and Vehicle Systems department manager in the Transportation Division of Westinghouse at Pittsburgh, Pa. This activity involved direction of comparative operating cost studies for various alternative types of transportation systems including buses.

Howell is a graduate of Southern Methodist University with a Bachelor of Science in Electrical Engineering. He is a registered professional engineer, a professional member of Eta Kappa Nu, and a member of IEEE.

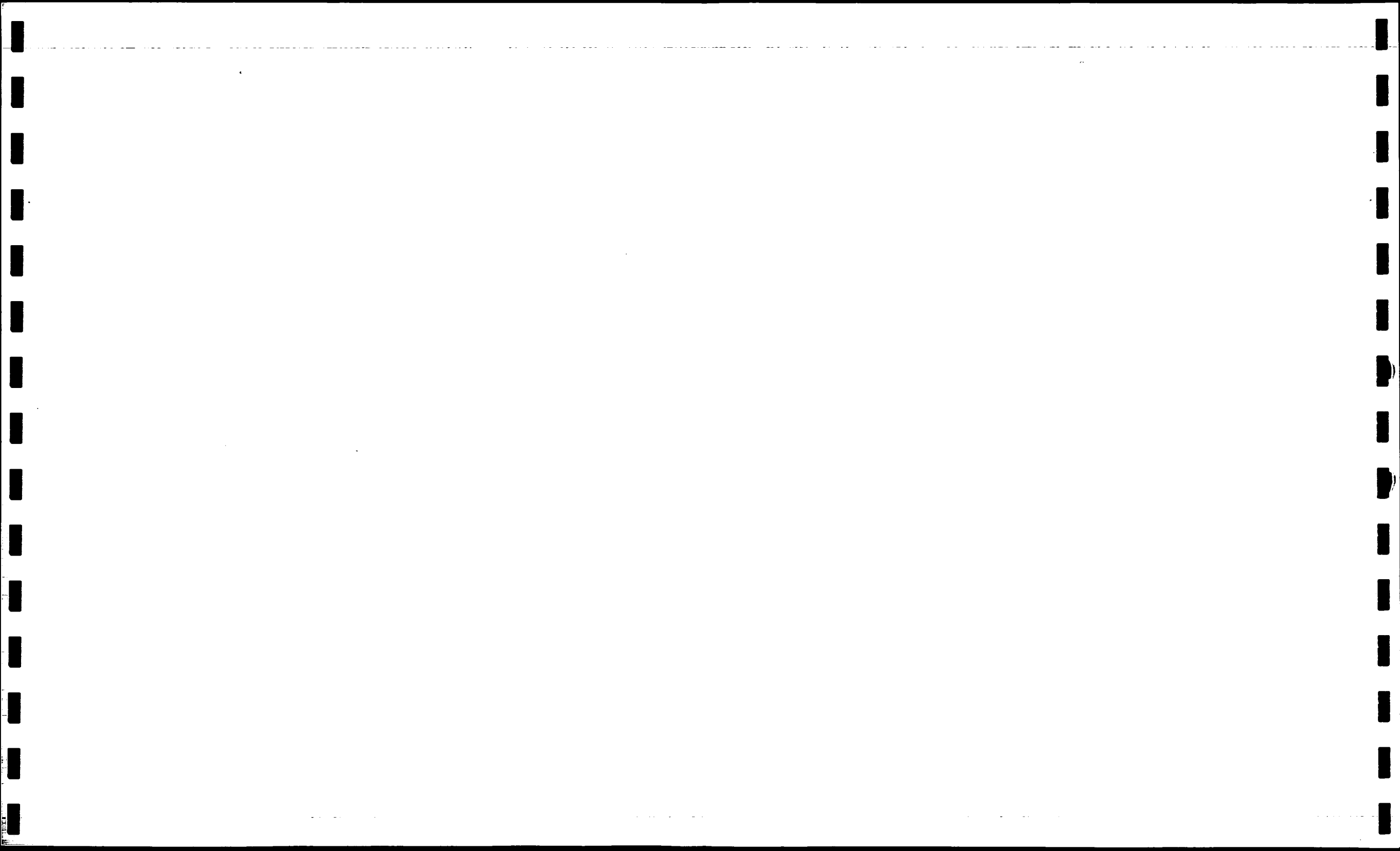
PROFESSIONAL PROFILE

JOEL G. BATES

Joel G. Bates is serving as managing partner in charge of marketing and systems study activities of Mobility Systems Co. Bates had formerly been with Westinghouse Electric Corporation's Transportation Division and with other Westinghouse systems activities, where he held various marketing, systems analysis, management and project administration positions during his seven years there. More specifically, he was responsible for representing Westinghouse in many multi-million dollar transportation systems negotiations involving highly complex comparative cost studies.

Previous to that he was with Humble Oil and Refining Company at Bayway Refinery as project engineer and economic analyst for five years.

Bates has a civil engineering degree from Purdue University and a Master of Business Administration degree from Cornell University. He is an associate member of the American Society of Civil Engineers.

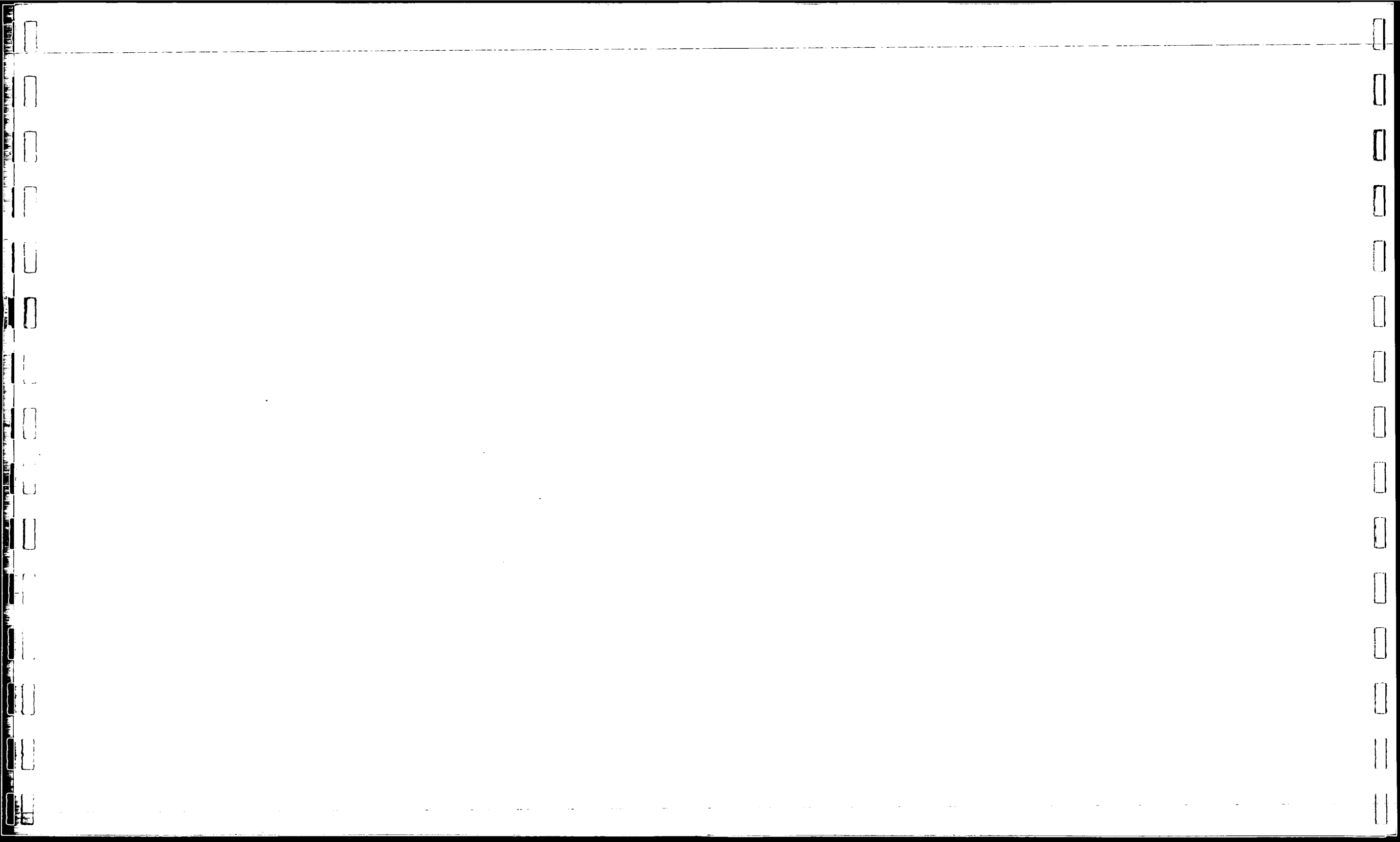


PROFESSIONAL PROFILE

LOUIS S. SKLAR

Louis S. Sklar has served as Research Director for the Gerald D. Hines Interests for three years. In addition to working in the usual disciplines required to analyze and evaluate raw land and income producing properties, Mr. Sklar serves as Project Manager for the Post Oak Urban Center Transportation Project. In this capacity he has performed financial analyses, evaluated system hardware, and participated in system specification preparation.

Mr. Sklar received a B.A. in Economics from Rice University. Prior to his association with the Hines Interests he worked as a systems analyst for a major insurance company.

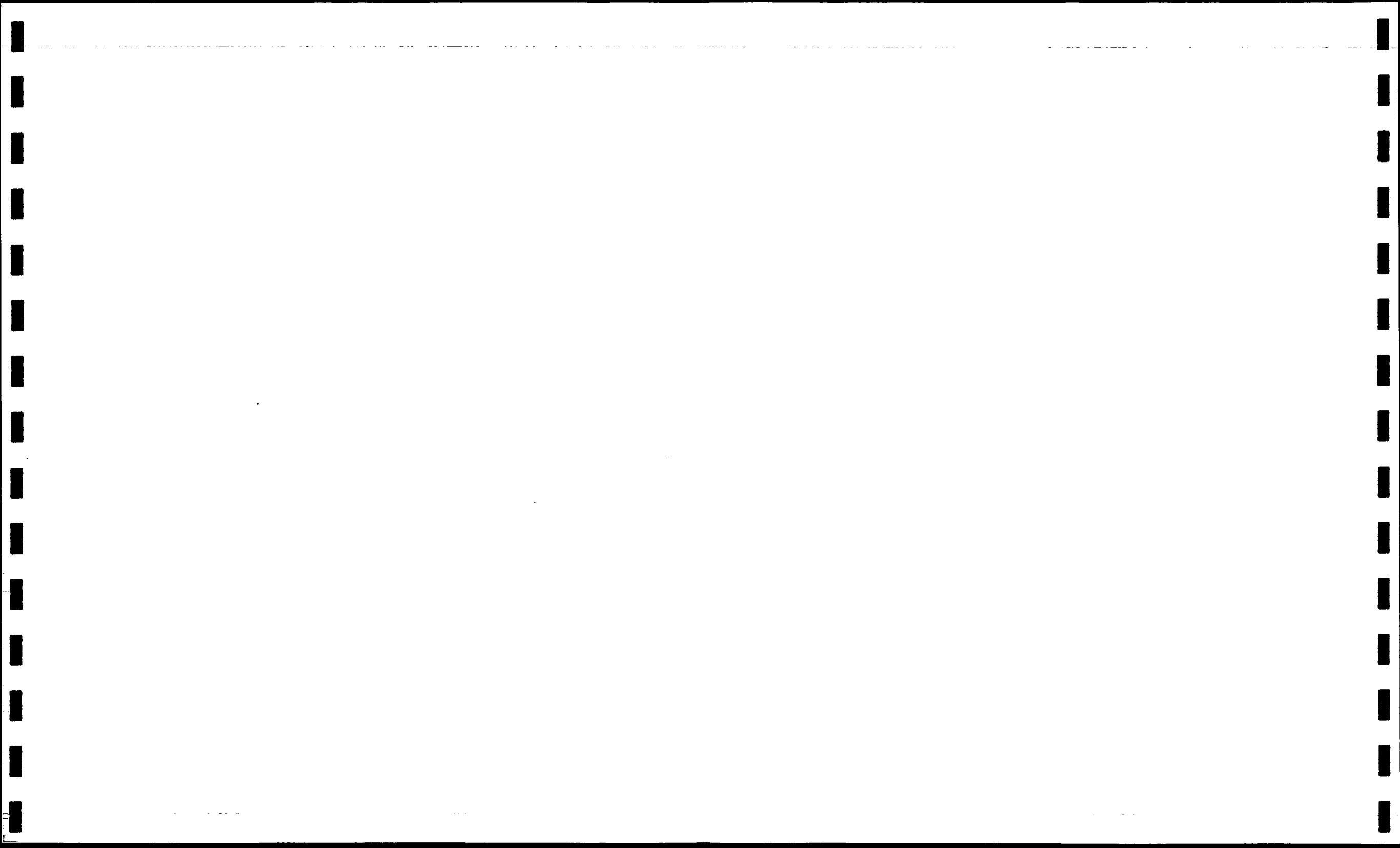


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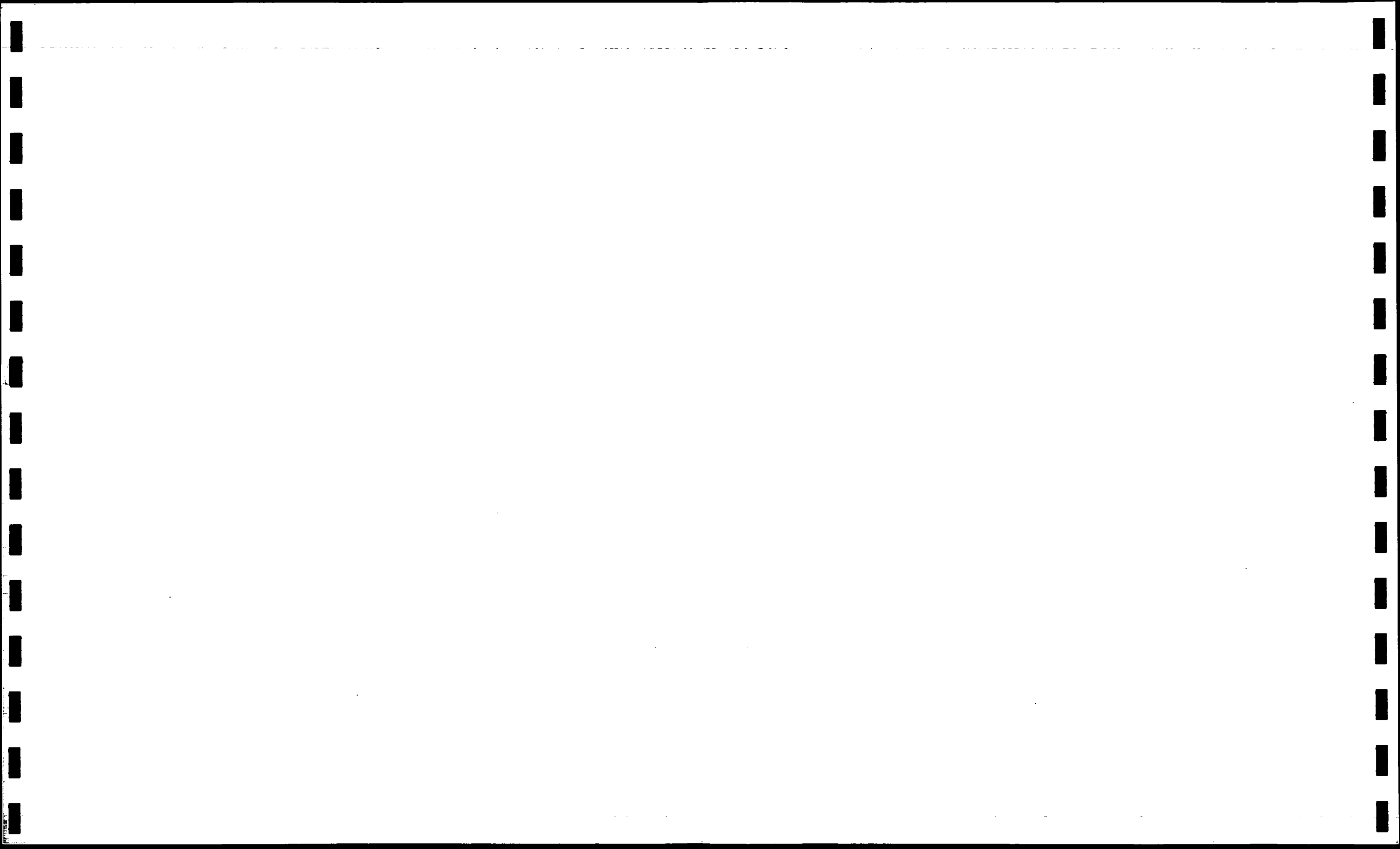
COST OF THE STUDY

Davis MacConnell Ralston, division of Westinghouse Learning Corp., tenders to the State of Maryland its offer to perform the following services as covered in this proposal:

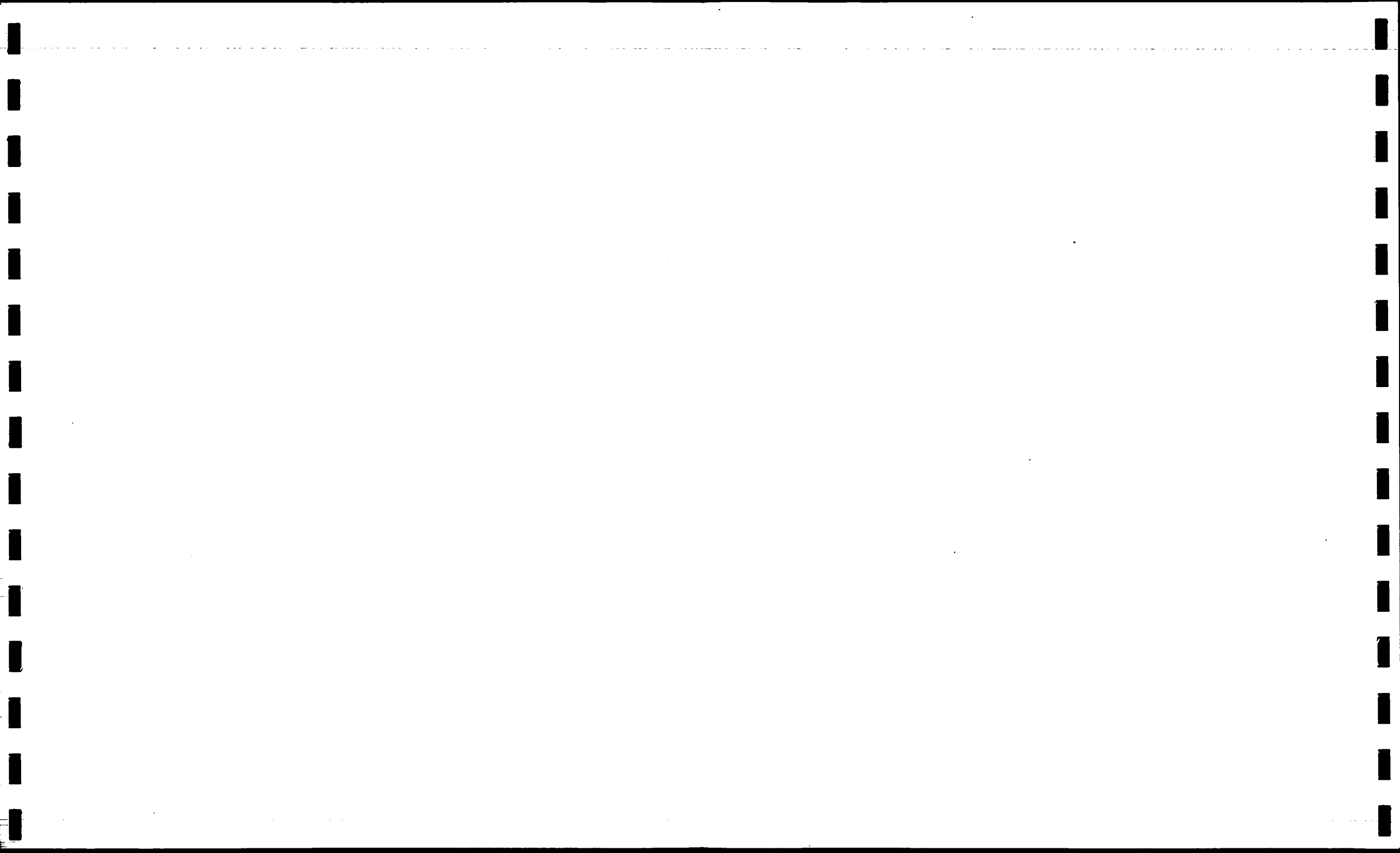
- I Analysis of Philosophical Assumptions
- II Analysis of Direct and Indirect Costs
- III Analysis of Unique Cost Variables
- IV Analysis of State Reimbursement Formula
- V Analysis of Attitudinal Factors (Optional)
- VI Project Reports
- VII Final Report
- VIII Follow-UP

The lump sum bid for these services is \$126,541.00 exclusive of TASK V, (Attitudinal Factors).

Should the TASK V be a desired element for consideration, the sum of \$16,444.00 should be added for a total of \$142,985.00.



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SUMMARY

As specified in the preceeding proposal, Davis MacConnell Ralston, a division of Westinghouse Learning Corporation, in conjunction with Mobility Systems Company will:

1. Study, indepth, the philosophical and cost considerations of public school transportation in the selected school districts of Maryland.
2. Provide a rational analysis of the types of transportation systems.
3. Recommend appropriate action.
4. Recommend appropriate state reimbursement formulae and,
5. Provide additional consultation days after the final report.

DMR/WLC looks forward to the opportunity to provide the State of Maryland with the specified services.

